



3 1223 09952 2568



SAN FRANCISCO PLANNING DEPARTMENT

Preliminary

Mitigated Negative Declaration

PMND Date: July 20, 2011; amended on November 30, 2011 (additions shown in underline; deletions in strike through)

Case No.: 2010.0755E

Project Title: San Francisco International Airport Runway Safety Area Program

Project Address: San Francisco International Airport

Project Sponsor: Audrey Park – (650) 821-7844

rey.park@flysfo.com

Francisco Planning Department

eNishimuraLisa Gibson – (415) 575-90419032

e.nishimuralisa.gibson@sfgov.org

1650 Mission St.
Suite 400
San Francisco,
CA 94103-2479

Reception:
415.558.6378

Fax:
415.558.6409

Planning
Information:
415.558.6377

GOVERNMENT
DOCUMENTS DEPT

FEB 23 2012

5/S



San Francisco Public Library

Government Information Center
San Francisco Public Library
100 Larkin Street, 5th Floor
San Francisco, CA 94102

REFERENCE BOOK

Not to be taken from the library

SAN FRANCISCO
PUBLIC LIBRARY

rt (SFO or Airport) is located in unincorporated San Mateo County, east within the jurisdiction of the City and County of San Francisco (CCSF). n of the CCSF is proposing to implement the SFO Runway Safety Area uncing the RSAs of existing runways to improve aviation safety. The o enhance the level of safety provided by RSAs at the Airport to comply Aviation Administration (FAA) Advisory Circular_150/5300-13, *Airport .L.)* 109-115. P.L. 109-115 requires completion of RSA improvements assign standards by December 31, 2015. RSAs are identified surfaces nd suitable for reducing the risk of damage to airplanes in the event excursion from the runway. The proposed SFO RSA Program runway thresholds while maintaining existing runway lengths, Arresting Systems where standard RSAs cannot reasonably be stances for several runways. A number of related components are

included, such as demolition and relocation of an existing electrical substation building, construction of new underground drainage installations and a pump station, relocation of runway and taxiway lights and signage, and modifications to existing navigation aids. The proposed project would require the following agency approvals and permits:

- U.S. Army Corps of Engineers Clean Water Act Section 404 Permit;
- U.S. Fish and Wildlife Service and National Marine Fisheries Service Federal Endangered Species Act Section 7 Consultation;

National Marine Fisheries Service Magnuson Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation;

State Historic Preservation Officer National Historic Preservation Act Section 106 Consultation;

California Department of Transportation Amended Airport Permit;

D
REF
387.736
Sa529m



SAN FRANCISCO PLANNING DEPARTMENT

Preliminary

Mitigated Negative Declaration

PMND Date: July 20, 2011; amended on November 30, 2011 (additions shown in underline; deletions in strike through)

Case No.: 2010.0755E

Project Title: San Francisco International Airport Runway Safety Area Program

Project Address: San Francisco International Airport

Project Sponsor: Audrey Park – (650) 821-7844
audrey.park@flysfo.com

Lead CEQA Agency: San Francisco Planning Department

Staff Contact: ~~Irene Nishimura~~ Lisa Gibson – (415) 575-9041/9032
~~irene.nishimura~~ lisa.gibson@sfgov.org

1650 Mission St.
Suite 400
San Francisco,
CA 94103-2479

Reception:
415.558.6378

Fax:
415.558.6409

Planning
Information:
415.558.6377

GOVERNMENT
DOCUMENTS DEPT

FEB 23 2012

PROJECT DESCRIPTION:

SAN FRANCISCO
PUBLIC LIBRARY

The San Francisco International Airport (SFO or Airport) is located in unincorporated San Mateo County, east of U.S. Highway 101. The Airport is within the jurisdiction of the City and County of San Francisco (CCSF). The San Francisco Airport Commission of the CCSF is proposing to implement the SFO Runway Safety Area (RSA) Program, which involves enhancing the RSAs of existing runways to improve aviation safety. The purpose of the SFO RSA Program is to enhance the level of safety provided by RSAs at the Airport to comply with standards included in Federal Aviation Administration (FAA) Advisory Circular-150/5300-13, *Airport Design*, as required by Public Law (P.L.) 109-115. P.L. 109-115 requires completion of RSA improvements by airport sponsors to meet FAA design standards by December 31, 2015. RSAs are identified surfaces surrounding the runway prepared and suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway. The proposed SFO RSA Program improvements include relocating runway thresholds while maintaining existing runway lengths, installing Engineered Materials Arresting Systems where standard RSAs cannot reasonably be constructed, and using declared distances for several runways. A number of related components are included, such as demolition and relocation of an existing electrical substation building, construction of new underground drainage installations and a pump station, relocation of runway and taxiway lights and signage, and modifications to existing navigation aids. The proposed project would require the following agency approvals and permits:

- U.S. Army Corps of Engineers Clean Water Act Section 404 Permit;
- U.S. Fish and Wildlife Service and National Marine Fisheries Service Federal Endangered Species Act Section 7 Consultation;
- National Marine Fisheries Service Magnuson Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation;
- State Historic Preservation Officer National Historic Preservation Act Section 106 Consultation;
- California Department of Transportation Amended Airport Permit;

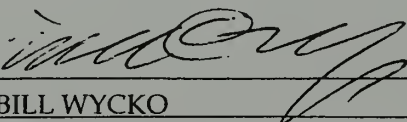
- California Department of Fish and Game (CDFG) California Endangered Species Act Sections 2080.1(b), and (c) ~~Consistency Determination, and/or State Incidental Take Permit, California Fish and Game Code Section 2050 et seq. (may be required, pending ongoing consultations with CDFG);~~
- San Francisco Regional Water Quality Control Board Clean Water Act Section 401 Permit Water Quality Certification;
- State Water Resources Control Board Clean Water Act Section 402 Permits National Pollutant Discharge Elimination System;
- San Francisco Bay Conservation and Development Commission Major Permit or Permit Amendment; ~~and~~
- San Francisco Planning Department Mitigated Negative Declaration adoption; and
- San Francisco Airport Commission review and adoption of the Mitigated Negative Declaration and California Environmental Quality Act findings, including the Mitigation Monitoring and Reporting Program.

FINDING:

This project could not have a significant effect on the environment. This finding is based ~~upon~~ the criteria of the Guidelines of the State Secretary for Resources, Sections 15064 (Determining Significant Effect), 15065 (Mandatory Findings of Significance), and 15070 (Decision to prepare a Negative Declaration), and the following reasons as documented in the Initial Evaluation (Initial Study) for the project, which is attached. Mitigation measures are included in this project to avoid potentially significant effects. See pages 196 through 211.

In the independent judgment of the Planning Department, there is no substantial evidence that the project could have a significant effect on the environment.

~~Mitigation measures are included in this project to avoid potentially significant effects. See Section F, page 195 of the attached Initial Study.~~


BILL WYCKO

Environmental Review Officer


December 5, 2011

Date of Adoption of Final Mitigated
Negative Declaration

cc: Audrey Park, Project Sponsor
Board of Supervisors
Bulletin Board
Master Decision File
Distribution List
San Francisco Chronicle News Department
San Francisco Examiner News Department

San Francisco International Airport
Runway Safety Area Program

Case No. 2010.0755E

November 2011

INITIAL STUDY TABLE OF CONTENTS

	Page
A. PROJECT BACKGROUND AND DESCRIPTION	1
A.1 Description of Existing Airport	2
A.2 Description of Existing Runway Safety Areas	2
A.3 RSA Alternatives	8
A.4 Description of Project Components	13
A.4.1 Runways 10L-28R and 10R-28L	31
A.4.2 Runways 1L-19R and 1R-19L	32
A.5 Project Approvals and Permits	35
A.6 Construction Schedule and Cost	36
B. PROJECT SETTING	39
C. COMPATIBILITY WITH EXISTING ZONING AND PLANS	41
C.1 Local and Regional Plans	41
C.1.1 San Francisco General Plan	41
C.1.2 Proposition M – The Accountable Planning Initiative	41
C.1.3 Other Local Plans	42
C.1.4 Regional Plans	43
C.2 Required Approvals and Permits	44
C.2.1 Federal Approvals and Permits	44
C.2.2 State Approvals and Permits	45
C.2.3 San Francisco Approvals and Permits	46
D. SUMMARY OF ENVIRONMENTAL EFFECTS	47
E. EVALUATION OF ENVIRONMENTAL EFFECTS	47
1. LAND USE AND LAND USE PLANNING	48
2. AESTHETICS	54
3. POPULATION AND HOUSING	59
4. CULTURAL AND PALEONTOLOGICAL RESOURCES	60
5. TRANSPORTATION AND CIRCULATION	68
6. NOISE	77
7. AIR QUALITY	105
8. GREENHOUSE GAS EMISSIONS	117
9. WIND AND SHADOW	126
10. RECREATION	128
11. UTILITIES AND SERVICE SYSTEMS	130
12. PUBLIC SERVICES	133
13. BIOLOGICAL RESOURCES	135
14. GEOLOGY, SOILS AND SEISMICITY	169
15. HYDROLOGY AND WATER QUALITY	172
16. HAZARDS AND HAZARDOUS MATERIALS	186
17. MINERAL AND ENERGY RESOURCES	192
18. AGRICULTURE AND FOREST RESOURCES	194
19. MANDATORY FINDINGS OF SIGNIFICANCE	195

F.	MITIGATION MEASURES AND IMPROVEMENT MEASURES	196
F.1	Mitigation Measures	196
F.2	Improvement Measures.....	211
G.	PUBLIC NOTICE AND COMMENT.....	213
G.1	Comments Received in Response to Notification of Project Receiving Environmental Review	213
	Response to City of San Bruno's Concerns	214
G.2	Websites	223
G.3	Comments Received in Response to Preliminary Mitigated Negative Declaration and Initial Study	223
H.	REVISIONS TO THE INITIAL STUDY	227
I.	DETERMINATION	229
J.	INITIAL STUDY AUTHORS AND PROJECT SPONSOR TEAM	230
A.	PROJECT BACKGROUND AND DESCRIPTION	1
A.1	Description of Existing Airport	2
A.2	Description of Existing Runway Safety Areas	2
A.3	RSA Alternatives	8
A.4	Description of Project Components	13
A.4.1	Runways 10L 28R and 10R 28L	31
A.4.2	Runways 1L 19R and 1R 19L	32
A.5	Project Approvals and Permits.....	35
A.6	Construction Schedule and Cost	36
B.	PROJECT SETTING	39
C.	COMPATIBILITY WITH EXISTING ZONING AND PLANS	41
C.1	Local and Regional Plans.....	41
C.1.1	San Francisco General Plan	41
C.1.2	Proposition M The Accountable Planning Initiative	41
C.1.3	Other Local Plans	42
C.1.4	Regional Plans	43
C.2	Required Approvals and Permits	44
C.2.1	Federal Approvals and Permits.....	44
C.2.2	State Approvals and Permits.....	45
C.2.3	San Francisco Approval and Permit	45
D.	SUMMARY OF ENVIRONMENTAL EFFECTS.....	46
E.	EVALUATION OF ENVIRONMENTAL EFFECTS	46
1.	LAND USE AND LAND USE PLANNING	47
2.	AESTHETICS	55
3.	POPULATION AND HOUSING.....	58
4.	CULTURAL AND PALEONTOLOGICAL RESOURCES	59
5.	TRANSPORTATION AND CIRCULATION	67
6.	NOISE	76
7.	AIR QUALITY	104
8.	GREENHOUSE GAS EMISSIONS	117

9.	<u>WIND AND SHADOW</u>	125
10.	<u>RECREATION</u>	127
11.	<u>UTILITIES AND SERVICE SYSTEMS</u>	129
12.	<u>PUBLIC SERVICES</u>	132
13.	<u>BIOLOGICAL RESOURCES</u>	134
14.	<u>GEOLOGY, SOILS AND SEISMICITY</u>	167
15.	<u>HYDROLOGY AND WATER QUALITY</u>	170
16.	<u>HAZARDS AND HAZARDOUS MATERIALS</u>	184
17.	<u>MINERAL AND ENERGY RESOURCES</u>	191
18.	<u>AGRICULTURE AND FOREST RESOURCES</u>	192
19.	<u>MANDATORY FINDINGS OF SIGNIFICANCE</u>	194
F.	<u>MITIGATION MEASURES AND IMPROVEMENT MEASURES</u>	195
G.	<u>PUBLIC NOTICE AND COMMENT</u>	209
H.	<u>DETERMINATION</u>	221
I.	<u>INITIAL STUDY AUTHORS AND PROJECT SPONSOR TEAM</u>	222

APPENDICES

Appendix A	Declared Distances
Appendix B	Special-Status Species
Appendix C	Comment Letter Received in Response to Early Notification
Appendix D	Comment Letters Received During Public Comment Period
Appendix E	Responses to Comment Letters Received During the Public Comment Period

LIST OF TABLES

Table 1	Summary of Key Runway Characteristics at San Francisco International Airport
Table 2	Runway Safety Area Requirements at San Francisco International Airport
Table 3	Summary of Existing Runway Safety Area Conditions at San Francisco International Airport
Table 4	Proposed Declared Distances for Runways 10L-28R and 10R-28L at San Francisco International Airport
Table 5	Proposed Declared Distances for Runways 1L-19R and 1R-19L at San Francisco International Airport
Table 6	Past, Present, and Foreseeable Actions
Table 7	Existing Transit Services Serving the San Francisco International Airport
Table 8	Annual Average Daily Traffic (2009) on Freeways/Roadways Adjacent to San Francisco International Airport
Table 9	Noise Exposure Within CNEL 65 dBA Contour – Proposed Project and No Project (2010, 2015 and 2020)

Table 10	Noise Exposure Change of 1.5 dBA within CNEL 65 dBA Contour – Proposed Project (2010, 2015 and 2020)
Table 11	Project Construction Average Daily Emissions Estimates
Table 12	Cumulative Health Impacts
Table 13	Greenhouse Gas Reductions from the Assembly Bill 32 Scoping Plan Sectors
Table 14	Project-Related Greenhouse Gas Emissions
Table 15	Parks and Recreation Areas within the Project Vicinity

LIST OF FIGURES

Figure 1	Regional Setting
Figure 2	Project Vicinity
Figure 3	Existing Runway Safety Area Conditions – Runways 1L-19R and 1R-19L
Figure 4	Existing Runway Safety Area Conditions – Runways 10L-28R and 10R-28L
Figure 5	Proposed Project – Key Map
Figure 6	Proposed Project – Runways 10L-28R and 10R-28L (East End)
Figure 7	Proposed Project – Runways 10L-28R and 10R-28L (West End)
Figure 8	Proposed Project – Layout Plan – Runways 10L-28R and 10R-28L
Figure 9	Proposed Project – Runways 1L-19R and 1R-19L (North End)
Figure 10	Proposed Project – Runways 1L-19R and 1R-19L (South End)
Figure 11	Proposed Project – Layout Plan – Runways 1L-19R and 1R-19L
Figure 12	Sample U.S. Airport Installations – Engineered Materials Arresting System
Figure 13	Preliminary Schedule
Figure 14	Existing Land Use
Figure 15	No Project Noise Contours (2010)
Figure 16	Proposed Project Noise Contours (2010)
Figure 17	No Project Noise Contours (2015)
Figure 18	Proposed Project Noise Contours (2015)
Figure 19	No Project Noise Contours (2020)
Figure 20	Proposed Project Noise Contours (2020)
Figure 21	Residential Land Use within the Area of CNEL 1.5 dB Change for Year 2010
Figure 22	Residential Land Use within the Area of CNEL 1.5 dB Change for Year 2015
Figure 23	Residential Land Use within the Area of CNEL 1.5 dB Change for Year 2020
Figure 24	Jurisdictional Areas in the Vicinity of Runways 1L and 1R
Figure 25	Jurisdictional Areas in the Vicinity of Runways 28L and 28R
Figure 26	Proposed Vehicle Service Road Relocation and Outfall Replacement Work Impacts
Figure 27	Location of Offsite Mitigation Projects
Figure 28	Deepwater Slough Island Mitigation Site
Figure 29	Project Impacts on Jurisdictional Areas Runways 1L and 1R
Figure 30	Project Impacts on Jurisdictional Areas Runways 28L and 28R
Figure 31	Locations of Proposed Presidio Trust Offsite Mitigation Projects
Figure 32	Runway 10L Approach Surface
Figure 33	Runway 10R Approach Surfaces
Figure 34	Runway 1L Approach Surfaces
Figure 35	Runway 1R Approach Surfaces

ACRONYMS

AB	Assembly Bill
ABAG	Association of Bay Area Governments
AC	Advisory Circular
APE	Area of Potential Effect
ARC	airport reference code
ASDA	Accelerate-Stop Distance Available
ATCT	Airport Traffic Control Tower
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BCDC	Bay Conservation and Development Commission
bgs	below ground surface
BMP	best management practice
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	California Code of Regulations
CCSF	City and County of San Francisco
CDFG	California Department of Fish and Game
CDOC	California Department of Conservation
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH ₄	methane
CNEL	Community Noise Equivalent Level
CNDDDB	California Natural Diversity Database
CNG	compressed natural gas
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide-equivalent
COB	City of Burlingame
COM	City of Millbrae
COSB	City of San Bruno
CPUC	California Public Utilities Code
CRHR	California Register of Historical Resources
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
EDR	Environmental Data Resources, Inc.
EIR	Environmental Impact Report
EMAS	Engineered Materials Arresting System
°F	degrees Fahrenheit
ERO	Environmental Review Officer
FAA	Federal Aviation Administration

FARR	Final Archeological Resources Report
FTA	Federal Transit Administration
GHG	greenhouse gas
GIS	Geographic Information Systems
HI	hazard index
HRSA	Health Risk Screening Analysis
INM	Integrated Noise Model
I-380	Interstate 380
IC	internal combustion
LDA	Landing Distance Available
LSA	LSA Associates, Inc.
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
MLD	Most Likely Descendant
MLLW	mean lower low water
MLTP	Mel Leong Treatment Plant
MLTP-IWP	Mel Leong Treatment Plant-Industrial Waste Process
MMTCO _{2e}	million gross metric tons of CO _{2e}
mph	miles per hour
MSL	mean sea level
MSM	Mobile Source Measure
MTC	Metropolitan Transportation Commission
N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NASIS	National Soil Information System Database
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NO _x	oxides of nitrogen
NO ₂	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
OEHHA	California Office of Environmental Health Hazard Assessment
OPR	Office of Planning and Research
P.L.	Public Law
PM ₁₀	particulate matter equal to or less than 10 micrometers
PM _{2.5}	particulate matter equal to or less than 2.5 micrometers
Pppm	parts per million
PRC	Public Resources Code
R&A	Ricondo & Associates, Inc.
R&D	research and development
REL	reference exposure level
ROG	reactive organic gas
RSA	Runway Safety Area
RSIP	Residential Sound Insulation Program
RTP	regional transportation plan
RWQCB	Regional Water Quality Control Board
RWSL	Runway Status Lights
SamTrans	San Mateo County Transit District
SB	Senate Bill

SFO	San Francisco International Airport
SHPO	State Historic Preservation Officer
SMC	San Mateo County
SO ₂	sulfur dioxide
SSURGO	Soil Survey Geographic Database for San Mateo County, Eastern Part and San Francisco County, California
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TAF	Terminal Area Forecast
TODA	Takeoff Distance Available
TORA	Takeoff Run Available
URS	URS Corporation
U.S. 101	U.S. Highway 101
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
U.S. EPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
VOC	volatile organic compound

A. PROJECT BACKGROUND AND DESCRIPTION

The City and County of San Francisco (CCSF), as owner and operator of San Francisco International Airport (SFO or the Airport), proposes to construct various safety improvements to existing Runway Safety Areas (RSAs) for each of the four runways at SFO. The SFO RSA Program improvements include relocating runway thresholds while maintaining existing runway lengths, installing Engineered Materials Arresting Systems (EMAS) where standard RSAs cannot reasonably be constructed, and using declared distances for several runways. A number of related components are included, such as relocation of a vehicle service road and existing sheet pile seawall, demolition and relocation of an existing electrical substation building, construction of new underground drainage installations and a pump station, relocation of runway and taxiway lights and signage, and modifications to existing navigational aids.

The SFO RSA Program is being undertaken by CCSF in response to the requirements of the *Transportation, Treasury, Housing and Urban Development, the Judiciary, The District of Columbia, and Independent Agencies Appropriations Act, 2006* (Public Law [P.L.] 109-115), November 30, 2005. P.L. 109-115 requires completion of RSA improvements by airport sponsors that hold a certificate under Title 14, Code of Federal Regulations (CFR), Part 139, to meet Federal Aviation Administration (FAA) design standards by December 31, 2015.¹

The FAA's design standards are intended to ensure the safety of aircraft, passengers, and workers at airports. These standards include criteria for RSAs, which are clear areas around a runway, free of objects and structures. RSAs are designed and maintained to enhance safety in the event that an aircraft undershoots, overruns, or veers off the runway, and to provide greater accessibility for firefighting and rescue equipment during such incidents. RSAs should also include grading and/or storm water drainage to prevent significant water accumulation. The applicable requirements for RSAs are included in Table 3-3 of FAA Advisory Circular (AC) 150/5300-13, *Airport Design*.²

Many airports were built before these RSA standards were adopted. FAA AC 150/5300-13 was first issued in September 1989 and RSA requirements were last updated in Change 12, dated January 2008.³ Achieving the required RSAs can be challenging due to such obstacles as water bodies, highways, or populated areas. In the late 1990s and early 2000s, a series of aircraft mishaps resulted in loss of human life and highlighted the need for airports to comply with RSA standards. These accidents, such as those in Little Rock, Arkansas, and Chicago, Illinois, stimulated the passage of P.L. 109-115, which states that "not later than December 31, 2015, the owner or operator of an airport certificated under 49 United States Code 44706 shall improve the

¹ Transportation, Treasury, Housing and Urban Development, the Judiciary, the District of Columbia, and Independent Agencies Appropriations Act 2006 (Public Law 109-115), November 30, 2005. Available online at: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109_cong_public_laws&docid=f:publ115.109.

² Federal Aviation Administration (FAA), FAA Advisory Circular 150/5300-13, *Airport Design*, Issued September 29, 1989, Change 16, issued January 3, 2011. Available online at: http://www.faa.gov/airports/resources/advisory_circulars/index.cfm?go=document.current/documentNumber/150_5300-13/. Accessed on May 21, 2011.

³ *Ibid.*

airport's RSAs to comply with the FAA design standards required by 14 Code of Federal Regulations Part 139" (P.L. 109-115, November 30, 2005 [119 Statute 2401]).

The CCSF proposes to implement the SFO RSA Program to enhance the level of safety provided by RSAs at the Airport to comply with standards included in FAA AC 150/5300-13, as required by P.L. 109-115.

A.1 DESCRIPTION OF EXISTING AIRPORT

The CCSF owns and operates SFO through the San Francisco Airport Commission. The Airport is in unincorporated San Mateo County, approximately 13 miles south of downtown San Francisco, California. SFO is east of U.S. Highway 101 (U.S. 101) and adjacent to San Francisco Bay, near the cities of South San Francisco, San Bruno, and Millbrae. Figure 1 on page 3 depicts SFO in its regional setting. Airport property in relation to the project site and surrounding local jurisdictions is shown on Figure 2 on page 5.

As shown on Figure 2, the airfield system at SFO consists of two sets of parallel runways that are arranged in an intersecting cross configuration. Two parallel runways are oriented in an approximate north-south axis and are referred to as the 1-19 system. These runways are designated 1L-19R and 1R-19L. The runway number indicates magnetic heading (e.g., the runway number 1 indicates that the runway has a magnetic heading of approximately 10 degrees). The 1-19 runway system is bisected by the approximate east-west oriented parallel runways of the 10-28 system. This system consists of runways designated 10L-28R and 10R-28L. The separation between parallel runways at SFO is 750 feet.

Table 1 on page 7 provides key additional information regarding the runways at SFO that is important to the development of the proposed project.

A.2 DESCRIPTION OF EXISTING RUNWAY SAFETY AREAS

The applicable requirements for RSAs are included in Table 3-3 of FAA AC 150/5300-13, *Airport Design*.⁴ Both the Airplane Design Group, defined by an aircraft's wingspan, and the Aircraft Approach Category, defined by an aircraft's approach speed, form the basis for establishing RSA dimensions, as well as the airport reference code for each runway. Because all runways at SFO can be used in either direction depending on wind conditions, the RSA dimension requirements outlined in Table 2 on page 8 apply to both ends of each runway.

Based on the requirements of the federally mandated P.L. 109-115, SFO must evaluate and determine whether all the RSAs at the Airport meet current FAA design standards. These RSA studies included a review of existing conditions and identified deficiencies with respect to current RSA standards. The studies were based on data in previous studies, Airport Layout Plan drawings, and available survey information. RSA

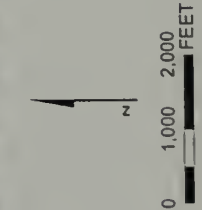
⁴ *Ibid.*



PROJECT VICINITY

San Francisco International Airport
 Runway Safety Area Program IS
 San Francisco, California

FIGURE 2



- LEGEND**
- Airport Boundary
 - Project Site
 - City Boundary

Table 1
Summary of Key Runway Characteristics at
San Francisco International Airport

Runway	Length (feet)	Displaced Landing Threshold (feet) ¹	Landing Distance Available (feet)	Design Aircraft ²	ARC ³
1R-19L	8,648	—	—	Airbus A380-800	D-VI
1R	—	238	8,410	—	—
19L	—	None	8,648	—	—
1L-19R	7,500	—	—	Boeing 757-200	C-IV
1L	—	491	7,009	—	—
19R	—	None	7,500	—	—
10R-28L	10,602	—	—	Boeing 747-400ER	D-V
10R	—	None	10,602	—	—
28L	—	None	10,602	—	—
10L-28R	11,870	—	—	Airbus A380-800	D-VI
10L	—	None	11,870	—	—
28R	—	None	11,870	—	—

Notes:

1. A displaced landing threshold is a runway threshold located at a point other than the physical end of the runway. The displaced portion of the runway may be used for takeoff but not for landing. Displaced landing thresholds may also be used to improve RSAs prior to the landing thresholds.
2. Future design aircraft is the aircraft intended to operate on a runway and is used to determine the most restrictive design criteria.
3. FAA AC 150/5300-13, *Airport Design* defines an airport reference code (ARC) as a coding system used to relate airport design criteria to the operational and physical characteristics of the airplanes intended to operate at an airport. The ARC has two components relating to the airport design aircraft. The first component, depicted by a letter, is the aircraft approach category and relates to aircraft approach speed (operational characteristic). The second component, depicted by a Roman numeral, is the airplane design group and relates to airplane wingspan or tail height (physical characteristics), whichever is the most restrictive.

The aircraft approach speeds relating to Category C and D aircraft are 121 knots or more but less than 141 knots and 141 knots or more but less than 166 knots, respectively. Criteria relating to airplane design groups IV, V, and VI include:

- Group IV: A wingspan of 118 feet up to but not including 171 feet, or a tail height from 45 feet up to but not including 60 feet.
- Group V: A wingspan of 171 feet up to but not including 214 feet, or a tail height from 60 feet up to but not including 66 feet.
- Group VI: A wingspan of 214 feet up to but not including 262 feet, or a tail height from 66 feet up to but not including 80 feet.

Sources: Jeppesen Sanderson, Inc., *San Francisco International Airport Charts*, July 2008. This document is on file and available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

Ricondo & Associates, Inc. (R&A), *Runway Safety Area Study for Runways 10R-28L and 10L-28R*, June 18, 2010, Revised August 27, 2010. This document is on file and available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

Ricondo & Associates, Inc. (R&A), *Runway Safety Area Study for Runways 1R-19L and 1L-19R*, June 18, 2010, Revised August 27, 2010. This document is on file and available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

Ricondo & Associates, Inc. (R&A), *Airport Layout Plan Update – Final*, February 2010. This document is on file and available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

Table 2
Runway Safety Area Requirements at
San Francisco International Airport

RSA Dimensions	Approach Category C and D (feet)
RSA Width	500
RSA Length Prior to Landing	600
RSA Length Beyond the Runway	1,000

Note:

RSA = Runway Safety Area

deficiencies were quantified to the extent that they do not meet applicable RSA standards.^{5,6} The reasons for these RSA deficiencies were determined to be primarily associated with limits imposed by U.S. 101, surface storm water detention basins, and San Francisco Bay; along with signs and some navigational aids that are within the RSA. Key RSA dimensions and deficiencies at SFO are summarized by runway in Table 3 on page 13. These existing RSA conditions of Runways 1L-19R and 1R-19L and Runways 10L-28R and 10R-28L are also presented on Figure 3 on page 9 and Figure 4 on page 11, respectively.

A.3 RSA ALTERNATIVES

The RSA studies also included the development of several RSA alternatives to comply or provide an equivalent level of safety with standards included in FAA AC 150/5300-13. The Airport established an RSA Study Working Group to provide input and evaluate the various RSA alternatives, and to ensure the needs of the various airport users were considered. The RSA Study Working Group included representatives of various Airport divisions (Planning, Design and Construction, Operations, and Community Affairs), SFO Airport Traffic Control staff, FAA Regional and Airport District Offices, and Ricondo & Associates, Inc. A report summarizing the findings of these RSA studies was prepared for each of the two runway systems.^{7,8} The RSA studies included additional information relating to the various RSA alternatives that were developed, and the determination of the preferred RSA alternatives.

⁵ Ricondo & Associates, Inc. (R&A), *Runway Safety Area Study for Runways 10R-28L and 10L-28R*, June 18, 2010, Revised August 27, 2010. This document is on file and available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

⁶ Ricondo & Associates, Inc. (R&A), *Runway Safety Area Study for Runways 1R-19L and 1L-19R*, June 18, 2010. Revised August 27, 2010. This document is on file and available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

⁷ Supra note 5.

⁸ Supra note 6.

Rwy 10L-28R Length = 11,870'

Existing Rwy 28R Localizer

Twy C Runway Object Free Area

Twy C

Runway Safety Area

500'

Twy S

Twy Z

Twy S2

Twy R

Twy C

Twy C

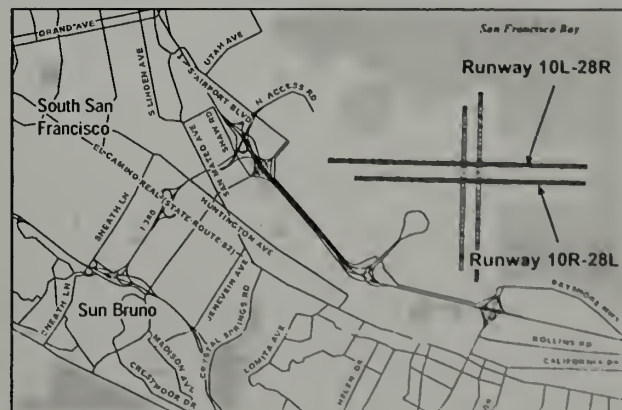
Service Road is the Limiting Object

San Francisco Bay

RSA = 1,000'

Available RSA = 322'

Diagram illustrating the Runway Safety Area (RSA) and Runway Object Free Area (ROFA) for Runway 10R-28L. The diagram shows the runway layout, including Taxiway A, Taxiway B, Taxiway C, Taxiway D, Taxiway E, Taxiway F, Taxiway G, Taxiway H, Taxiway I, Taxiway J, Taxiway K, Taxiway L, Taxiway M, Taxiway N, Taxiway O, Taxiway P, Taxiway Q, Taxiway R, Taxiway S, Taxiway T, Taxiway U, Taxiway V, Taxiway W, Taxiway X, Taxiway Y, Taxiway Z, Taxiway AA, Taxiway AB, Taxiway AC, Taxiway AD, Taxiway AE, Taxiway AF, Taxiway AG, Taxiway AH, Taxiway AI, Taxiway AJ, Taxiway AK, Taxiway AL, Taxiway AM, Taxiway AN, Taxiway AO, Taxiway AP, Taxiway AQ, Taxiway AR, Taxiway AS, Taxiway AT, Taxiway AU, Taxiway AV, Taxiway AW, Taxiway AX, Taxiway AY, Taxiway AZ, Taxiway BA, Taxiway BB, Taxiway BC, Taxiway BD, Taxiway BE, Taxiway BF, Taxiway BG, Taxiway BH, Taxiway BI, Taxiway BJ, Taxiway BK, Taxiway BL, Taxiway BM, Taxiway BN, Taxiway BO, Taxiway BP, Taxiway BQ, Taxiway BR, Taxiway BS, Taxiway BT, Taxiway BU, Taxiway BV, Taxiway BW, Taxiway BX, Taxiway BY, Taxiway BZ, Taxiway CA, Taxiway CB, Taxiway CC, Taxiway CD, Taxiway CE, Taxiway CF, Taxiway CG, Taxiway CH, Taxiway CI, Taxiway CJ, Taxiway CK, Taxiway CL, Taxiway CM, Taxiway CN, Taxiway CO, Taxiway CP, Taxiway CQ, Taxiway CR, Taxiway CS, Taxiway CT, Taxiway CU, Taxiway CV, Taxiway CW, Taxiway CX, Taxiway CY, Taxiway CZ, Taxiway DA, Taxiway DB, Taxiway DC, Taxiway DD, Taxiway DE, Taxiway DF, Taxiway DG, Taxiway DH, Taxiway DI, Taxiway DJ, Taxiway DK, Taxiway DL, Taxiway DM, Taxiway DN, Taxiway DO, Taxiway DP, Taxiway DQ, Taxiway DR, Taxiway DS, Taxiway DT, Taxiway DU, Taxiway DV, Taxiway DW, Taxiway DX, Taxiway DY, Taxiway DZ, Taxiway EA, Taxiway EB, Taxiway EC, Taxiway ED, Taxiway EE, Taxiway EF, Taxiway EG, Taxiway EH, Taxiway EI, Taxiway EJ, Taxiway EK, Taxiway EL, Taxiway EM, Taxiway EN, Taxiway EO, Taxiway EP, Taxiway EQ, Taxiway ER, Taxiway ES, Taxiway ET, Taxiway EU, Taxiway EV, Taxiway EW, Taxiway EX, Taxiway EY, Taxiway EZ, Taxiway FA, Taxiway FB, Taxiway FC, Taxiway FD, Taxiway FE, Taxiway FG, Taxiway FH, Taxiway FI, Taxiway FJ, Taxiway FK, Taxiway FL, Taxiway FM, Taxiway FN, Taxiway FO, Taxiway FP, Taxiway FQ, Taxiway FR, Taxiway FS, Taxiway FT, Taxiway FU, Taxiway FV, Taxiway FW, Taxiway FX, Taxiway FY, Taxiway FZ, Taxiway GA, Taxiway GB, Taxiway GC, Taxiway GD, Taxiway GE, Taxiway GF, Taxiway GG, Taxiway GH, Taxiway GI, Taxiway GJ, Taxiway GK, Taxiway GL, Taxiway GM, Taxiway GN, Taxiway GO, Taxiway GP, Taxiway GQ, Taxiway GR, Taxiway GS, Taxiway GT, Taxiway GU, Taxiway GV, Taxiway GW, Taxiway GX, Taxiway GY, Taxiway GZ, Taxiway HA, Taxiway HB, Taxiway HC, Taxiway HD, Taxiway HE, Taxiway HF, Taxiway HG, Taxiway HH, Taxiway HI, Taxiway HJ, Taxiway HK, Taxiway HL, Taxiway HM, Taxiway HN, Taxiway HO, Taxiway HP, Taxiway HQ, Taxiway HR, Taxiway HS, Taxiway HT, Taxiway HU, Taxiway HV, Taxiway HW, Taxiway HX, Taxiway HY, Taxiway HZ, Taxiway IA, Taxiway IB, Taxiway IC, Taxiway ID, Taxiway IE, Taxiway IF, Taxiway IG, Taxiway IH, Taxiway II, Taxiway IJ, Taxiway IK, Taxiway IL, Taxiway IM, Taxiway IN, Taxiway IO, Taxiway IP, Taxiway IQ, Taxiway IR, Taxiway IS, Taxiway IT, Taxiway IU, Taxiway IV, Taxiway IW, Taxiway IX, Taxiway IY, Taxiway IZ, Taxiway JA, Taxiway JB, Taxiway JC, Taxiway JD, Taxiway JE, Taxiway JF, Taxiway JG, Taxiway JH, Taxiway JI, Taxiway JJ, Taxiway JK, Taxiway JL, Taxiway JM, Taxiway JN, Taxiway JO, Taxiway JP, Taxiway JQ, Taxiway JR, Taxiway JS, Taxiway JT, Taxiway JU, Taxiway JV, Taxiway JW, Taxiway JX, Taxiway JY, Taxiway JZ, Taxiway KA, Taxiway KB, Taxiway KC, Taxiway KD, Taxiway KE, Taxiway KF, Taxiway KG, Taxiway KH, Taxiway KI,



Runway Object Free Area
Runway Safety Area

Source:
R&A (2010a), Exhibits 2-2 and 2-3 [Original sources: FAA Advisory Circular 150/5300, Airport Design;
San Francisco International Airport; SFO Airport Basemap, SFO Facilities Division, 2007]

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

11/16/11 vsa/hk ...T:\SFO RSA\IS_Mar2011\Fig4_Existing_10R-28L+10L-28R.ai

Table 3
Summary of Existing Runway Safety Area Conditions at
San Francisco International Airport

Runway and Runway Ends	RSA Available Length from Runway Approach End ¹ (feet)	Meets FAA Standards?	Deficiency (feet)	Limits of RSA Design
Runways 1L-19R and 1R-19L				
1L	609	No	391	South Detention Basin
1R	777	No	223	South McDonnell Road, U.S. 101, and Millbrae Highline Canal
19L	246	No	754	San Francisco Bay
19R	177	No	823	San Francisco Bay
Runways 10L-28R and 10R-28L				
10L	1,000	Yes ²	N/A	—
10R	1,000	Yes ²	N/A	—
28L	324	No	676	San Francisco Bay
28R	322	No	678	San Francisco Bay

Notes:

1. All RSAs at SFO are 500 feet wide centered along the runway centerline. A 500-foot-wide RSA complies with the width dimensions required in FAA AC 150/5300-13, *Airport Design*.
2. The existing RSAs of Runways 10L and 10R ~~are standard~~ do not meet FAA Airport Design Standards due to existing navigational aids (made out of non-frangible materials) within the standard dimensions of the RSAs. Objects more than 3 inches above grade must be frangible-mounted (capable of breaking off easily on impact) structures of the lowest practical height, with the frangible point no higher than 3 inches above grade.

AC = Advisory Circular

N/A = Not Applicable

FAA = Federal Aviation Administration

RSA = Runway Safety Area

U.S. 101 = U.S. Highway 101

Sources:

Ricondo & Associates, Inc. (R&A), *Runway Safety Area Study for Runways 10R-28L and 10L-28R*, June 18, 2010, Revised August 27, 2010. This document is on file and available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

Ricondo & Associates, Inc. (R&A), *Runway Safety Area Study for Runways 1R-19L and 1L-19R*, June 18, 2010, Revised August 27, 2010. This document is on file and available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

A.4 DESCRIPTION OF PROJECT COMPONENTS

The SFO RSA Program involves improving the RSAs of Runways 10L-28R, 10R-28L, 1L-19R, and 1R-19L to enhance safety. The SFO RSA Program is based on the preferred alternatives from the RSA studies completed in August 2010.¹⁰ The preferred RSA alternatives and associated improvements are referred to in this document as the “SFO RSA Program,” “proposed project,” or “project.” The various components of the proposed project are presented on Figures 5 through 11 on pages 15 through 27, and are described below.

⁹ Supra note 2.

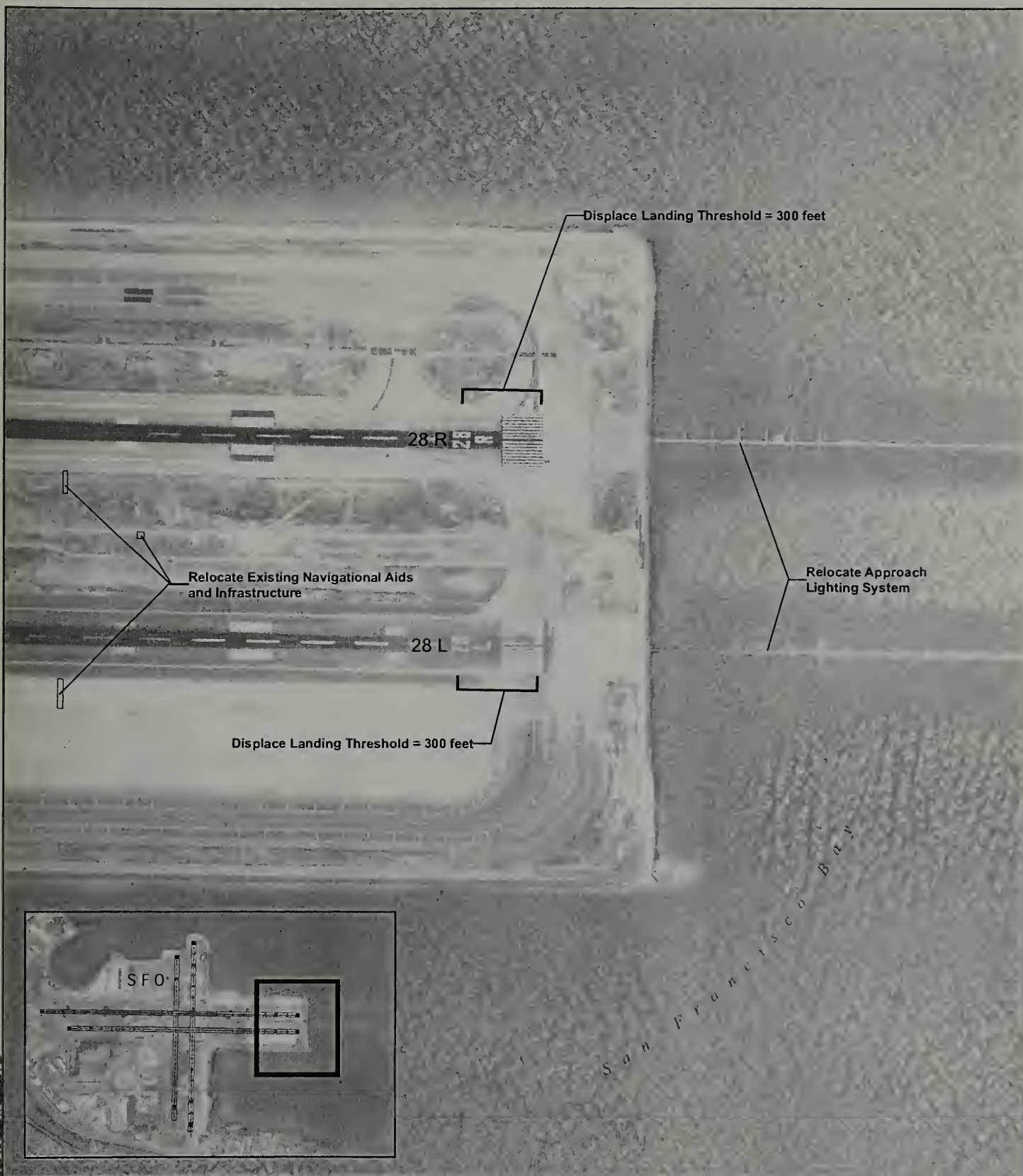
¹⁰ Supra notes 5 and 6.

The proposed improvements involve a combination of runway shifts (moving the position of a runway horizontally) and other improvements, and would be made in four geographic locations (at the two ends of each pair of parallel runways). It is not practicable to create RSAs for Runways 1L-19R and 1R-19L that meet the applicable standards because of the position of the runways relative to San Francisco Bay and U.S. 101. An EMAS is proposed to be installed at each end of these runway ends to enhance the RSAs. An EMAS is a specialized system installed in the RSA beyond the runway end, made of high energy absorbing materials. When an aircraft overruns the runway, these materials are crushed, absorbing the force of the aircraft and decelerating and arresting the aircraft's movement. Section 4 of FAA AC 150/5220-22A, *Engineered Materials Arresting Systems for Aircraft Overruns*,¹¹ indicates that a standard EMAS provides a level of safety that is equivalent to a full RSA built to the dimensional standards in FAA AC 150/5300-13. The final dimensions of the EMAS beds to be installed will be determined by more detailed engineering analysis during final project design. Sample EMAS installations are presented in Figure 12, on page 29.

The SFO RSA Program also includes the use of "declared distances" for several of the runways. Declared distances involve the designation of specific lengths of runway pavement that are available for use by pilots in planning takeoffs or landings using that runway, considering the capabilities of their aircraft for safe operations, the Operations Specifications of the aircraft operator approved by the FAA under 14 CFR Part 119, or the operational standards of the aircraft operator. These designations allow remaining portions of the runway pavement to be designated as part of the RSA. Declared distances proposed as part of the SFO RSA Program include Takeoff Run Available, Takeoff Distance Available, Accelerate-Stop Distance Available, and Landing Distance Available. These terms are defined below and further discussed in Appendix A.

- Takeoff Run Available (TORA) – the runway length declared available and suitable for satisfying takeoff run requirements. The TORA is measured from the start of takeoff to a point 200 feet from the beginning of the departure Runway Protection Zone.
- Takeoff Distance Available (TODA) – this distance comprises the TORA plus the length of any remaining runway or clearway beyond the far end of the TORA.
- Accelerate-Stop Distance Available (ASDA) – the runway plus stopway length declared available and suitable for the acceleration and deceleration of an aircraft that must abort its takeoff. A stopway is an area beyond the takeoff runway able to support the airplane during an aborted takeoff, without causing structural damage to the airplane.
- Landing Distance Available (LDA) – the runway length that is declared available and suitable for satisfying aircraft landing distance requirements.

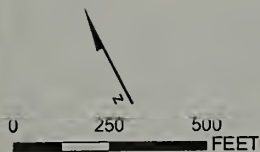
¹¹ FAA, FAA Advisory Circular 150/5220-22A, *Engineered Materials Arresting Systems (EMAS) for Aircraft Overruns*, Issued September 30, 2005. Available Online at: http://www.FAA.gov/airports/resources/advisory_circulars/index.cfm/go/document.current/documentNumber/150_5220-22.

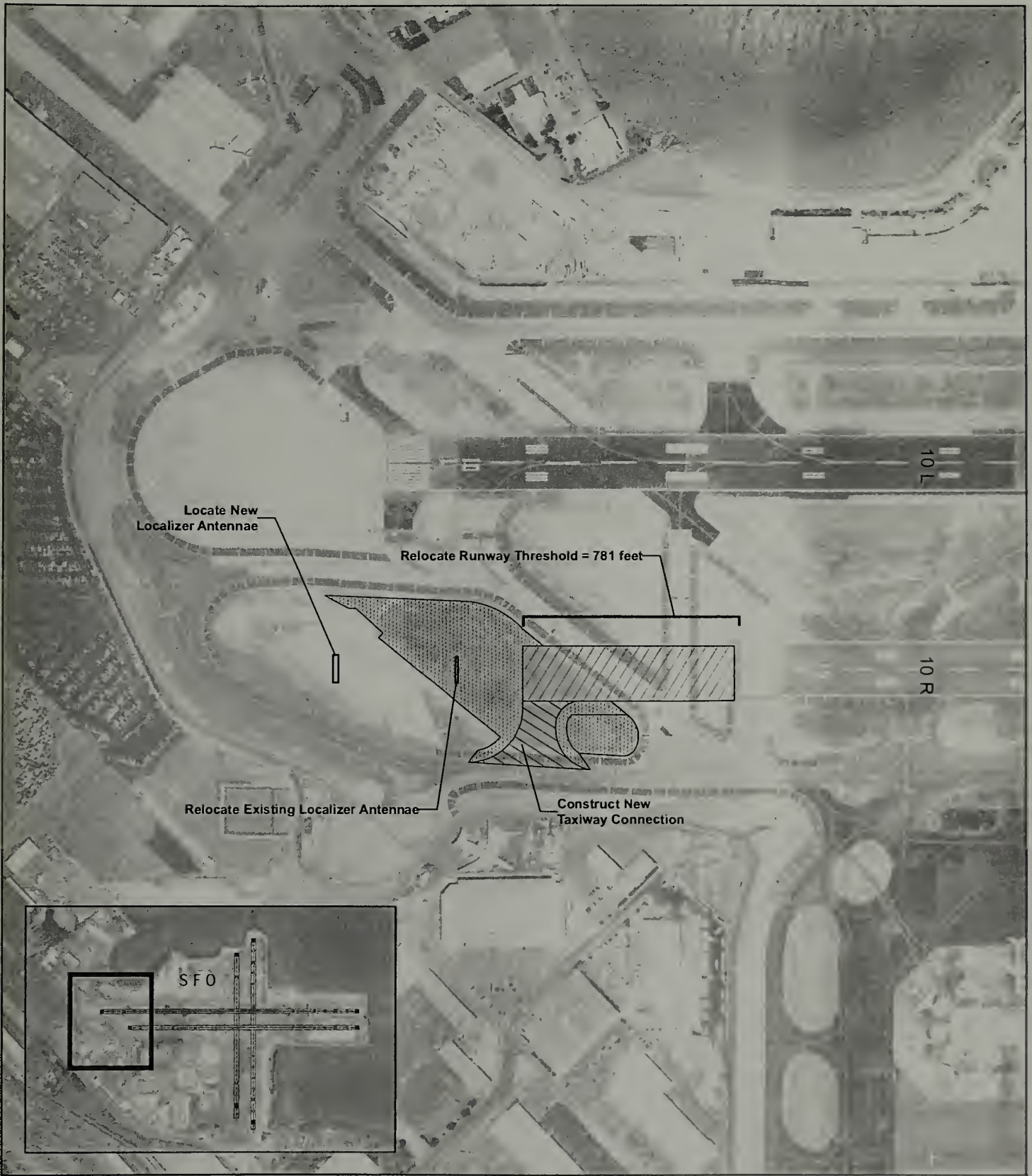


**PROPOSED PROJECT – RUNWAYS
10L-28R AND 10R-28L (EAST END)**

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

FIGURE 6



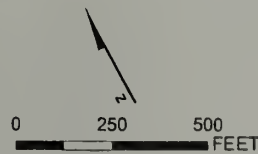


LEGEND

-  New Runway Pavement ¹
-  New Taxiway
-  Other New Asphalt Concrete

Note:

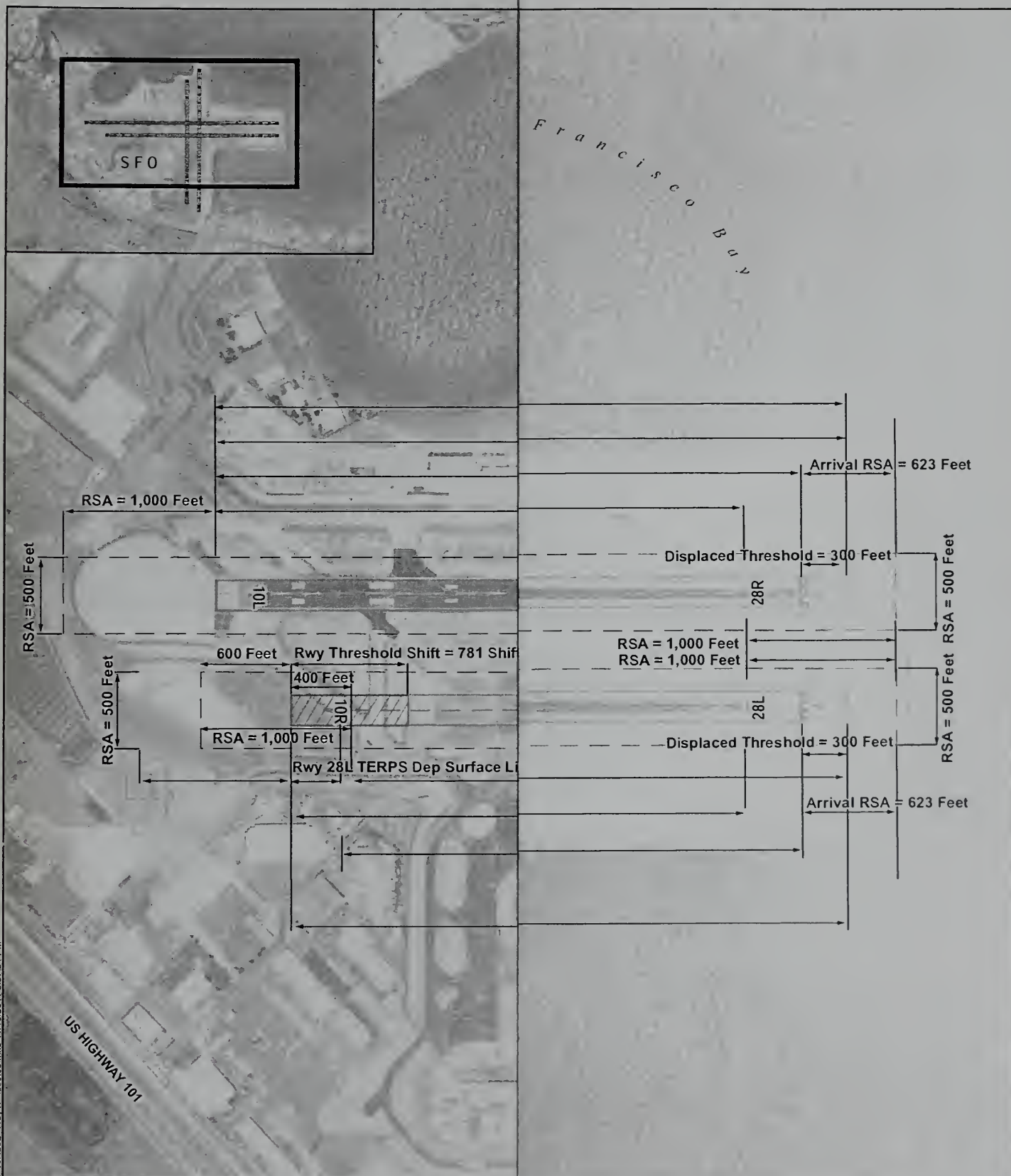
1. To maintain existing usable runway length and less than 499-foot runway stagger.



**PROPOSED PROJECT – RUNWAYS
10L-28R AND 10R-28L (WEST END)**

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

FIGURE 7



LEGEND

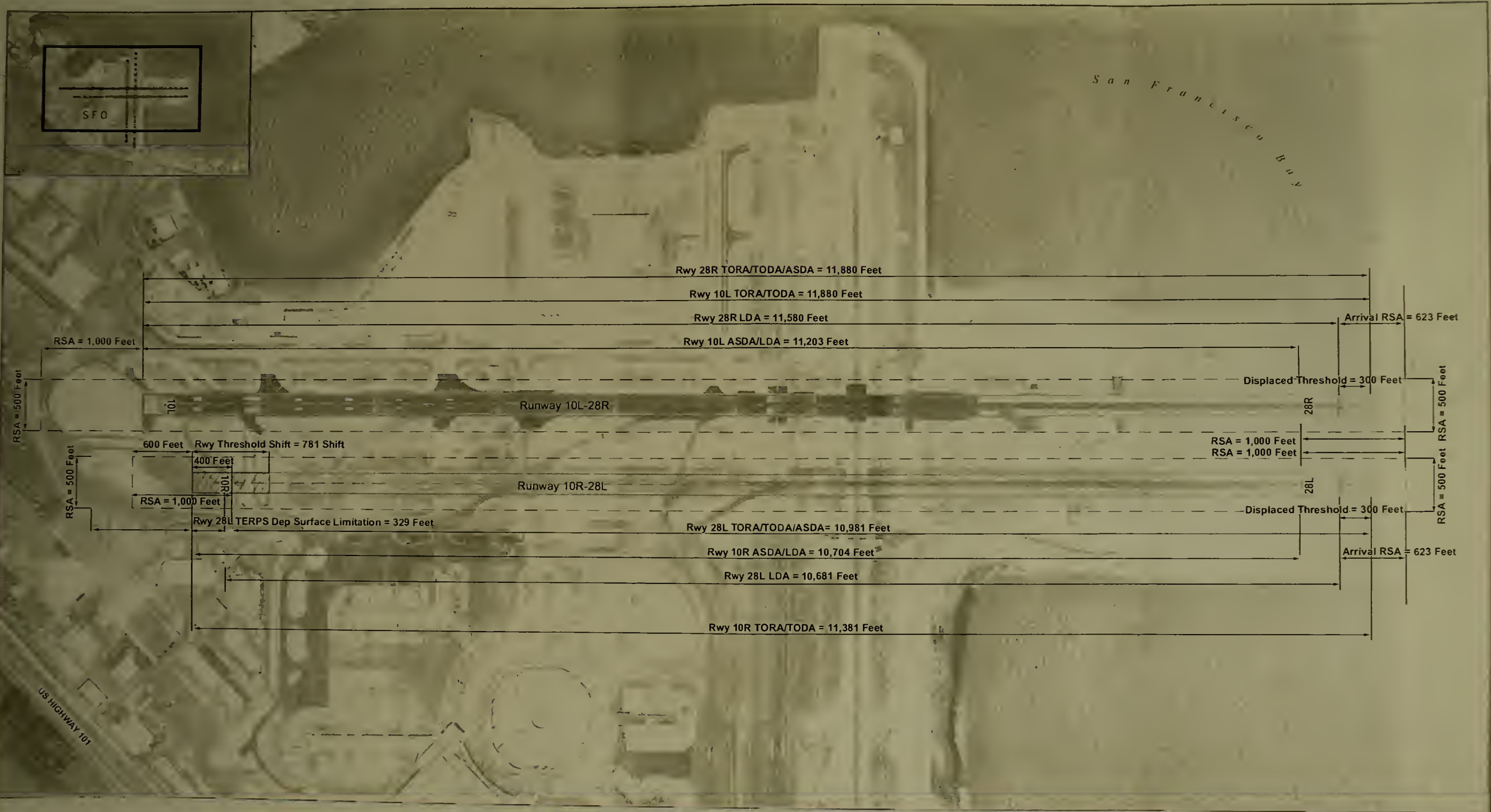
- New Runway Striping
- Runway Safety Area
- New Runway Pavement

Acronyms and Abbreviations
 ASDA = Accelerated Stop Distance Available
 Dep = Departure
 LDA = Landing Distance Available
 RSA = Runway Safety Area
 Rwy = Runway
 TERPS = Terminal Instrument Procedures
 TODA = Takeoff Distance Available
 TORA = Takeoff Runway Available

PROPOSED PROJECT - LAYOUT PLAN - RUNWAYS 10L-28R AND 10R-28L

San Francisco International Airport
 Runway Safety Area Program IS
 San Francisco, California

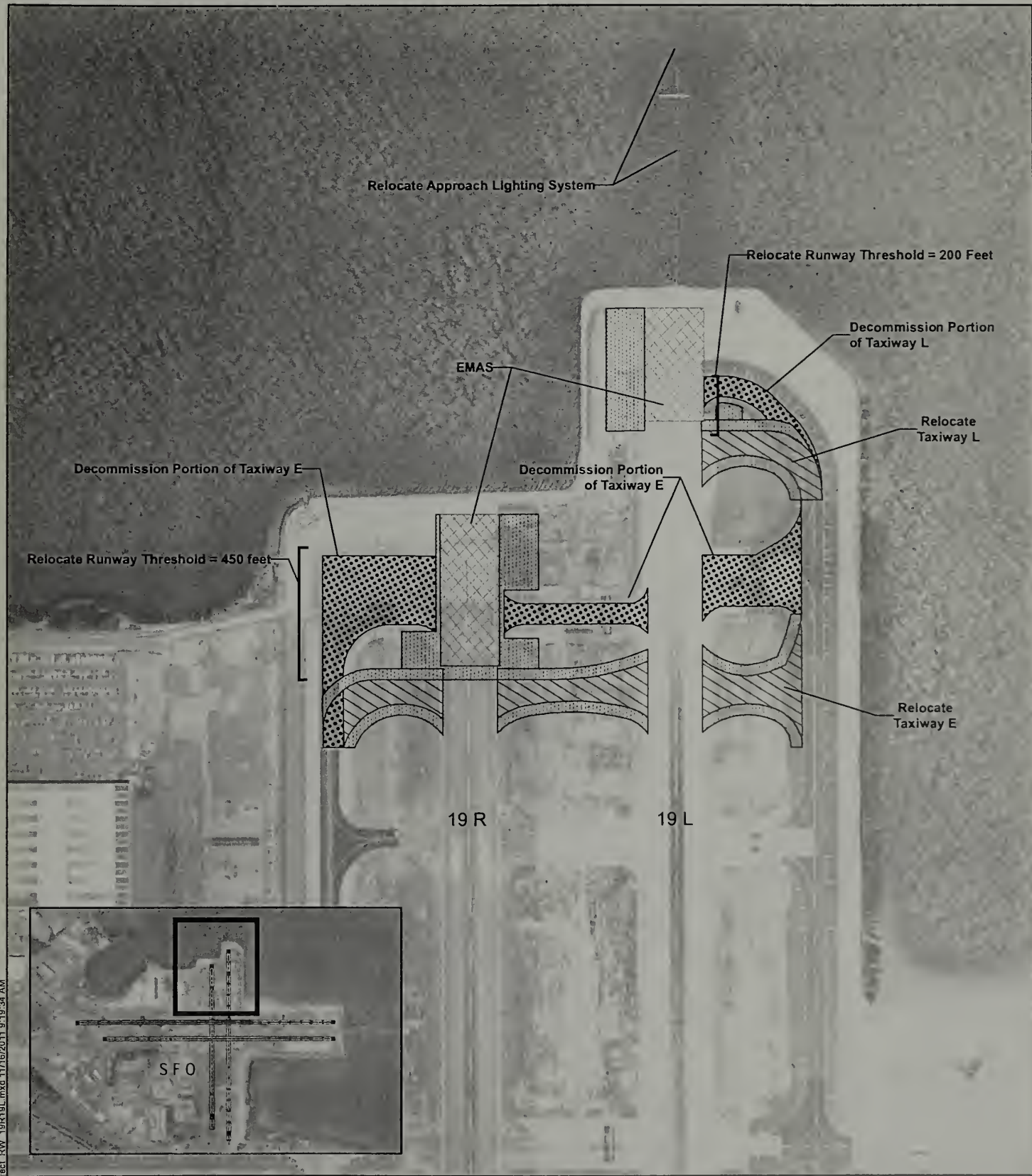
FIGURE 8



**PROPOSED PROJECT - LAYOUT PLAN -
RUNWAYS 10L-28R AND 10R-28L**

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

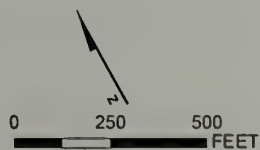
FIGURE 8



LEGEND

-  Engineered Materials Arresting System
-  Relocated Taxiway
-  Other New Asphalt Concrete
-  Decommissioned Taxiway

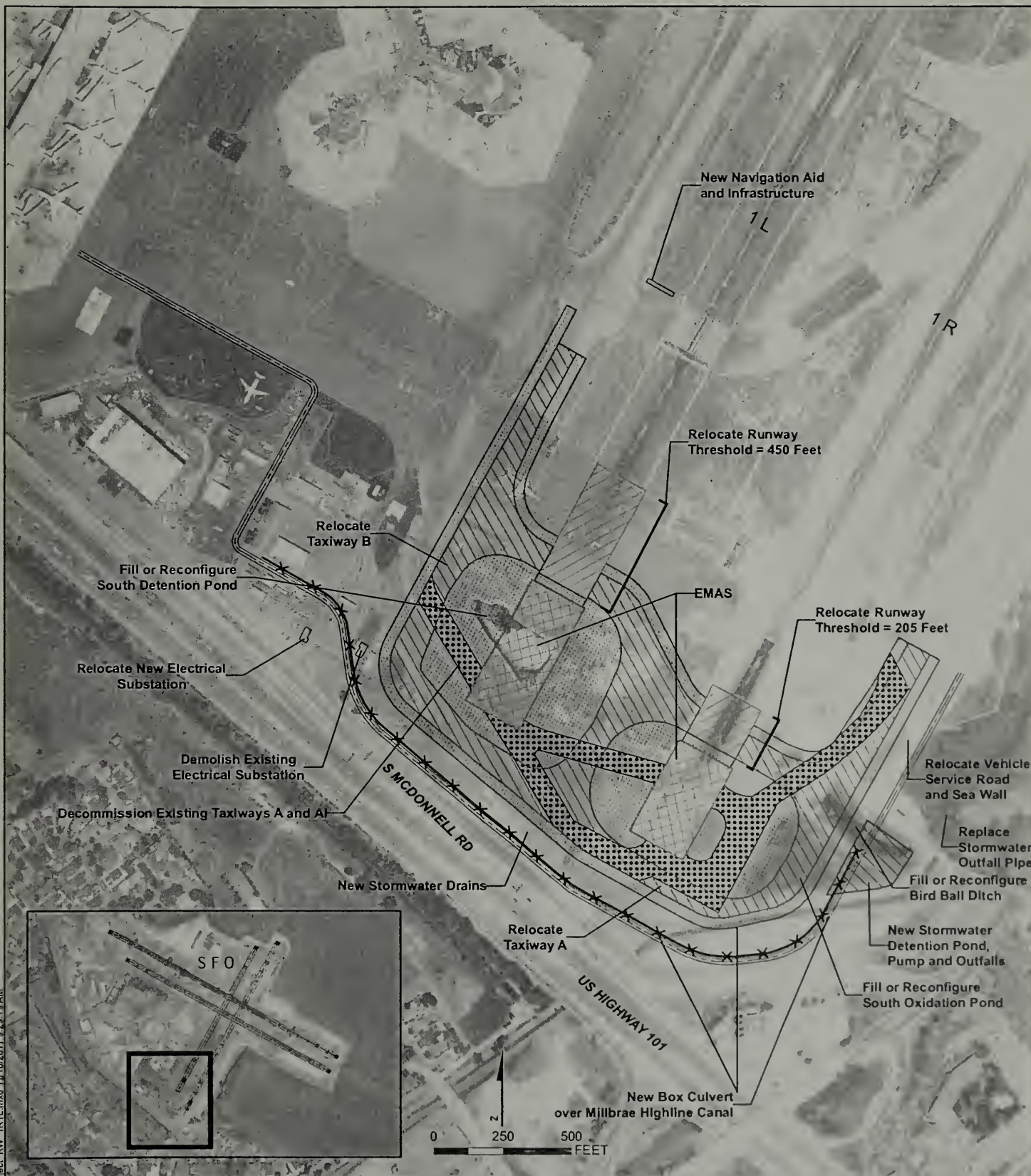
Acronym:
EMAS = Engineered Materials Arresting System



PROPOSED PROJECT – RUNWAYS 1L-19R AND 1R-19L (NORTH END)

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

FIGURE 9



LEGEND

- ✕ Relocated Blast Fence
- ══ Relocated Vehicle Service Road
- ▨ Engineered Materials Arresting System
- ▭ New Runway Pavement
- ▨ Relocated Taxiway
- ▨ Other New Asphalt Concrete
- ▨ Decommissioned Taxiway

▨ New Detention Pond

Note:
1. To maintain existing runway length

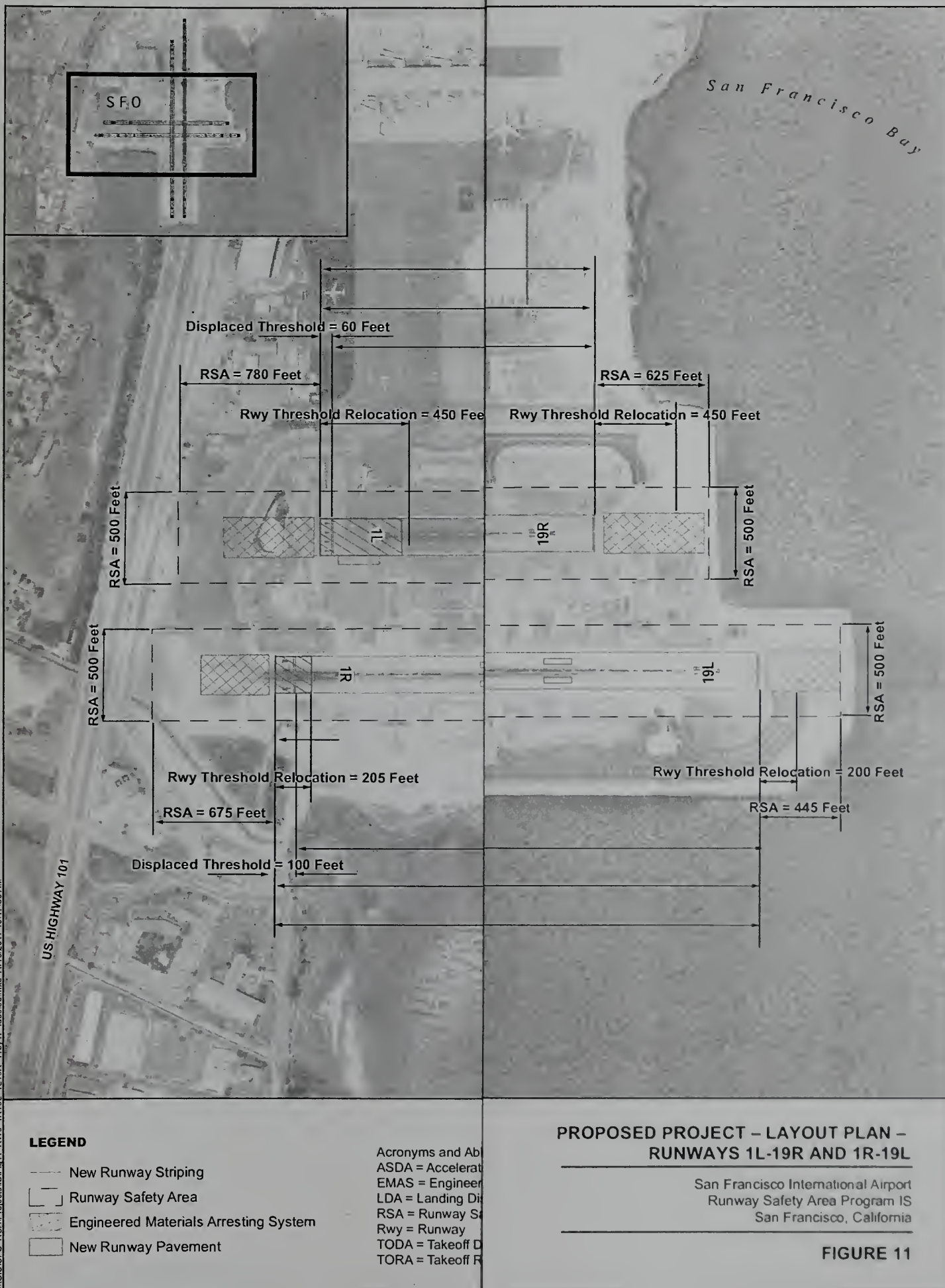
Acronym:
EMAS = Engineered Materials Arresting System

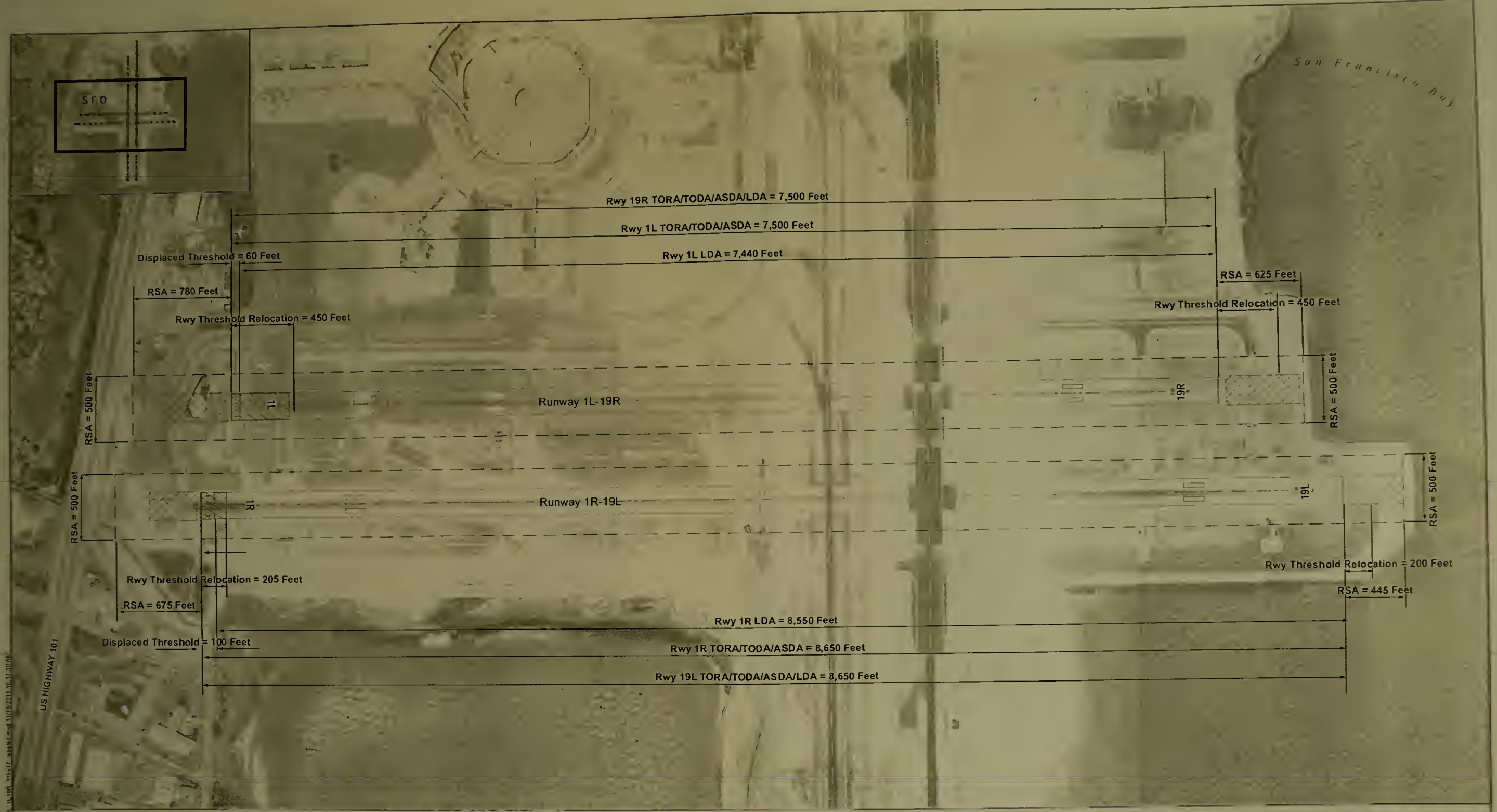
PROPOSED PROJECT – RUNWAYS 1L-19R AND 1R-19L (SOUTH END)

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

FIGURE 10

U:\GIS\SFO_RSAP\Projects\IS\Fig11_RW3_1R19L_1L19R_11by17_labeled.mxd 11/16/2011 10:17:30 AM

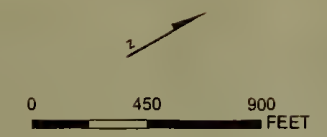




LEGEND

- New Runway Stamping
- Runway Safety Area
- Engineered Materials Arresting System
- New Runway Pavement

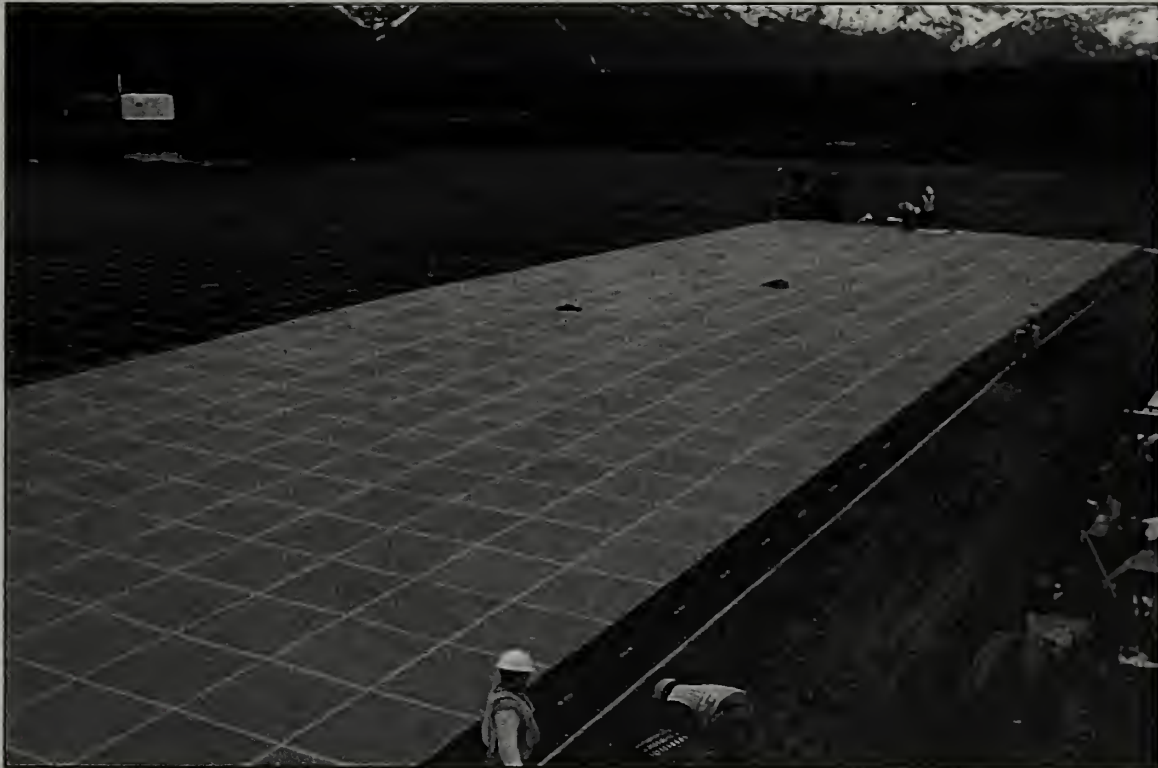
Acronyms and Abbreviations:
ASDA = Accelerate-Stop Distance Available
EMAS = Engineered Materials Arresting System
LDA = Landing Distance Available
RSA = Runway Safety Area
Rwy = Runway
TODA = Takeoff Distance Available
TORA = Takeoff Run Available



PROPOSED PROJECT – LAYOUT PLAN – RUNWAYS 1L-19R AND 1R-19L

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

FIGURE 11

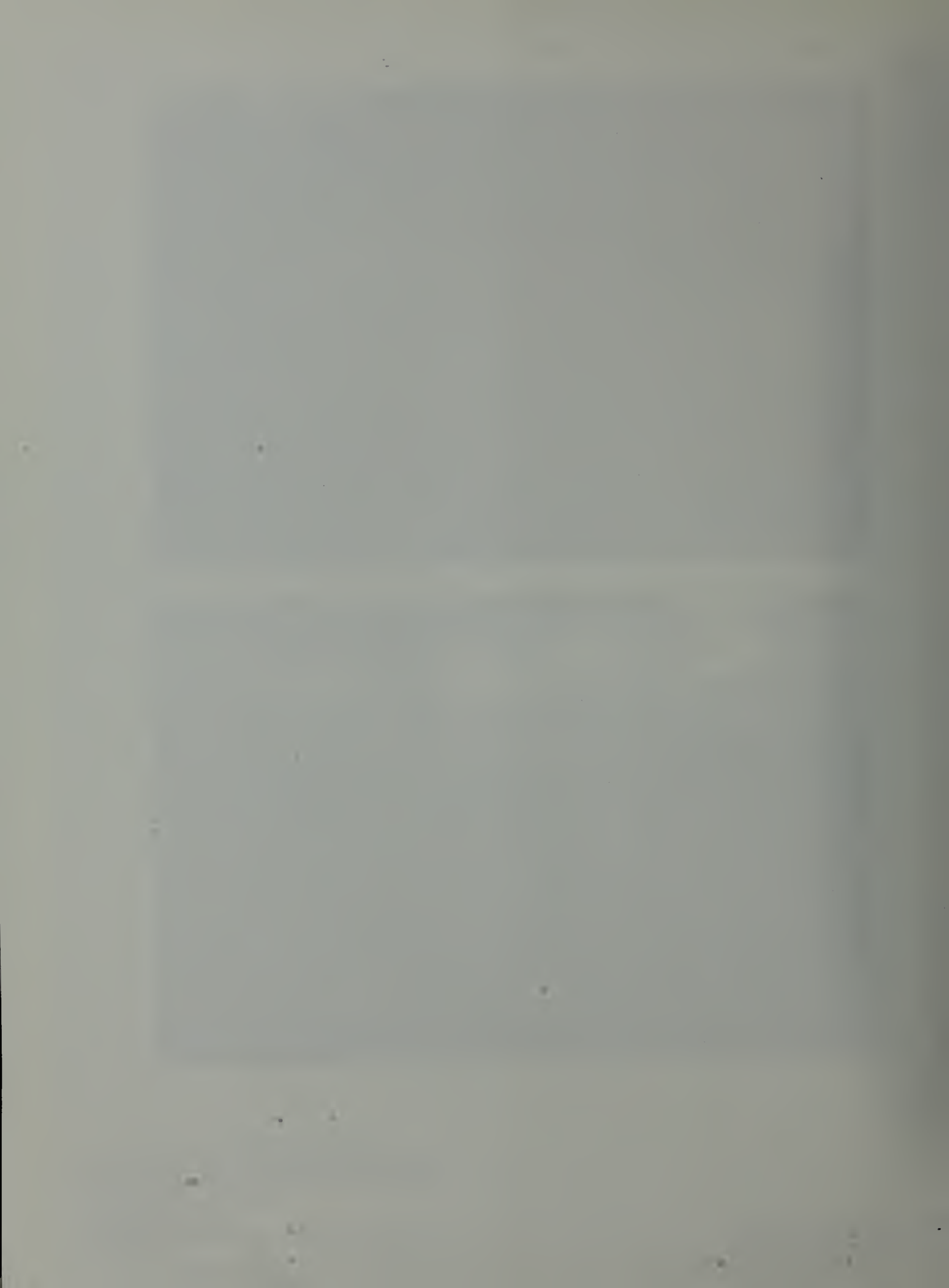


**SAMPLE U.S. AIRPORT INSTALLATIONS –
ENGINEERED MATERIALS ARRESTING SYSTEM**

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

FIGURE 12

Sources:
Top: Engineered Arresting Systems Corporation
Bottom: Yeager Airport, Charleston, West Virginia



The SFO RSA Program also includes a number of related components such as demolition and relocation of an existing electrical substation building, construction of new underground drainage installations and a pump station, relocation of runway and taxiway lights and signage, and modifications to existing navigational aids. While not part of the SFO RSA Program, installation of Runway Status Lights (RWSL) overlaps with the proposed construction schedule of the SFO RSA Program, and are therefore included with the proposed project. RWSLs are lights embedded in the runway and taxiway pavement that provide visual warnings to pilots when it is unsafe to cross runways and taxiways. The purpose of and design requirements for RWSLs are detailed in FAA AC 150/5340-30E, *Design and Installation Details for Airport Visual Aids*.¹² For example, the red takeoff hold lights are illuminated if the runway is unsafe for departures. There are three types of RWSLs that would be installed: runway-entrance hold lights, take-off hold lights, and runway intersection lights. These lights would be installed at all runway ends, associated taxiways, and intersection points. Project components are also listed under descriptions for each runway pair included in Sections A.4.1 and A.4.2.

A.4.1 Runways 10L-28R and 10R-28L

The primary components of the RSA enhancements to Runways 10L-28R and 10R-28L associated with the proposed project include:

East End (Figure 6, page 17)

- Displace the landing thresholds for Runways 28L and 28R by approximately 300 feet to the west to provide 600 feet of RSA prior to the landing thresholds.
- Relocate glide slope navigational aids, associated infrastructure, and portions of the approach lighting system installations for Runways 28L and 28R to accommodate the relocated landing thresholds, including ten new 20-inch diameter timber piles supporting the existing wooden trestles and associated approach lighting systems in San Francisco Bay. All pilings would be driven with an vibratory impact hammer.
- The 500-foot-wide RSA at the approach end of Runway 28R includes a seasonal wetland/depressional ponding area that would be filled in accordance with FAA AC 150/5300-13, which requires that RSAs be level and free of obstructions, including areas that retain water. The seasonal wetland/ponding area is approximately 0.54 acre in size and is located approximately 50 feet from the edge of Runway 28R.
- Install Runway Status Lights.

¹² FAA, FAA Advisory Circular 150/5340-30E, *Design and Installation Details for Airport Visual Aids*, Issued September 29, 2010. Available online at: http://www.faa.gov/airports/resources/advisory_circulars/index.cfm/go/document.current/documentNumber/150_5340-30.

West End (Figure 7, page 19)

- Relocate the west end of the Runway 10R-28L pavement by approximately 781 feet west to preserve the existing Runway 10R takeoff capability and stagger of parallel runway thresholds.
- Relocate the existing localizer antenna to the west for arrivals on Runway 28L.
- Construct a new taxiway connection between Taxiway S, the relocated threshold of Runway 10R, and Taxiway Z.
- Install Runway Status Lights.

Declared Distances (Figure 8, page 21)

- Implement (establish new procedures for) Declared Distances for Runways 10L-28R and 10R-28L as presented in Table 4.

Table 4
Proposed Declared Distances for Runways 10L-28R and 10R-28L at
San Francisco International Airport
(feet)

Runway	10L	28R	10R	28L
ASDA	11,203	11,880	10,704	10,981
LDA	11,203	11,580	10,704	10,681
TORA	11,880	11,880	11,381	10,981
TODA	11,880	11,880	11,381	10,981

Notes:

ASDA = Accelerate-Stop Distance Available

LDA = Landing Distance Available

TODA = Takeoff Distance Available

TORA = Takeoff Run Available

A.4.2 Runways 1L-19R and 1R-19L

The primary components of the RSA enhancements to Runways 1L-19R and 1R-19L associated with the SFO RSA Program are listed below.

Runway Shifts (Figures 9 and 10, pages 23 and 25)

- Shift Runway 1R-19L approximately 200 feet to the south by extending the runway pavement at the south end of the runway by approximately 205 feet and reducing the north end of the runway by a similar distance, thus providing a 446-foot-long by 500-foot-wide RSA prior to the Runway 19L landing threshold while maintaining the existing runway length.

- Shift Runway 1L-19R approximately 450 feet to the south by extending the runway pavement at the south end of the runway by approximately 450 feet and reducing the north end of the runway by a similar distance, thus providing a 600-foot-long by 500-foot-wide RSA prior to the Runway 19R landing threshold while maintaining the existing runway length.

North End (Figure 9, page 23)

- Construct an EMAS bed approximately 550 feet long and 220 feet wide, north of the Runway 19R threshold, with a 50-foot setback from the runway end.
- Construct an EMAS bed approximately 440 feet long and 220 feet wide, north of the Runway 19L threshold, with a 35-foot setback from the runway end.
- Decommission the existing pavement of Taxiway E and Taxiway L, and replace the taxiways to provide access to the relocated threshold of Runways 19L and 19R.
- Relocate portions of the approach lighting for Runway 19L to accommodate the relocated landing threshold, including twenty new 20 inch-diameter timber piles supporting the existing wooden trestles and associated approach lighting systems in San Francisco Bay. All pilings would be driven with an vibratory impact hammer.
- Install Runway Status Lights.

South End (Figure 10, page 25)

- Construct an EMAS bed approximately 500 feet long and 220 feet wide, south of the Runway 1L threshold, with a 35-foot setback from the runway end.
- Construct an EMAS bed approximately 380 feet long and 220 feet wide, south of the Runway 1R threshold, with a 35-foot setback from the runway end.
- Decommission portions of the existing Taxiway A and Taxiway A1 pavement and construct a realigned Taxiway A extending between Taxiway B and Taxiway L, around the south side of the new EMAS installations at the south end of the runways.
- Construct a new taxiway between Taxiway B, the Runway 1L threshold, the Runway 1R threshold, and Taxiway L, with a midfield connection to the realigned Taxiway A.

- Realign the airport operating area fence and blast fence to an area south of relocated Taxiway A, which would include constructing a new box culvert over the Millbrae Highline Canal for a taxiway shoulder and realigned vehicle service road, blast fence, and airport operating area fence.
- Fill and/or reconfigure the South Detention Basin,¹³ South Oxidation Pond, Bird Ball Ditch, and associated stormwater ponds for construction of the new taxiways, install new stormwater drains and a new pump station, replace stormwater outfall pipe, realign an existing vehicle service road and existing sheet pile seawall, relocate an existing electrical substation, and modify existing navigational aids. All work would occur with typical construction equipment, such as bulldozers, excavators, and dump trucks.
- The proposed vehicle service road relocation would require the fill of 0.04 acre of tidal marsh to accommodate an approximately 250-foot segment of the new 20-foot-wide roadway south of Runway 1R. All work for the vehicle service road relocation would occur from upland areas, and no construction equipment would enter the tidal marsh.
- Replace stormwater drainage outfall pipes with larger-diameter pipes in their existing location. Two of the new pipes would be 36 inches in diameter. The remaining four pipes would be replaced in-kind; two would be 30 inches in diameter, and one would be 18 inches in diameter. The existing timber trestle would be used to support the new outfall pipes. Up to 18 new timber blocks would be added to the trestle structure to facilitate outfall pipe installation. No additional pile driving, pile removal, or fill would be conducted as part of the stormwater outfall pipe replacement activities. Replacement of the stormwater outfall pipes would occur from land to minimize tidal marsh disturbance and the existing timber trestle (except for additional pipe support blocks) would be used to support the replacement stormwater outfall pipes.
- Install Runway Status Lights.

Declared Distances (Figure 11, page 27)

- Implement (establish new procedures for) Declared Distances for Runways 1L-19R and 1R-19L as presented in Table 5.

¹³ The South Detention Pond is a constructed concrete-lined basin that is part of the first-flush stormwater system on the Airport. This area has been considered nonjurisdictional by the U.S. Army Corps of Engineers since it was first delineated in 1996.

Table 5
Proposed Declared Distances for Runways 1L-19R and 1R-19L at
San Francisco International Airport
(feet)

Runway	1L	19R	1R	19L
ASDA	7,500	7,500	8,650	8,650
LDA	7,440	7,500	8,550	8,650
TORA	7,500	7,500	8,650	8,650
TODA	7,500	7,500	8,650	8,650

Notes:

ASDA = Accelerate-Stop Distance Available

LDA = Landing Distance Available

TODA = Takeoff Distance Available

TORA = Takeoff Run Available

A.5 PROJECT APPROVALS AND PERMITS

The proposed project would require various agency approvals and permits, which are listed below and described in more detail in Section C, Compatibility with Existing Zoning and Plans, in this Initial Study, on pages 414 through 456.

- U.S. Army Corps of Engineers Clean Water Act (CWA) Section 404 Permit;
- U.S. Fish and Wildlife Service and National Marine Fisheries Service (NMFS) Federal Endangered Species Act Section 7 Consultation;
- NMFS Magnuson Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation;
- State Historic Preservation Officer National Historic Preservation Act Section 106 Consultation;
- California Department of Transportation Amended Airport Permit;
- California Department of Fish and Game (CDFG) California Endangered Species Act Sections 2080.1(b), and (c) Consistency Determination, and/or State Incidental Take Permit; California Fish and Game Code Section 2050 et seq. (may be required, pending ongoing consultations with CDFG);
- San Francisco Regional Water Quality Control Board CWA Section 401 Permit Water Quality Certification;

- State Water Resources Control Board CWA Section 402 Permits National Pollutant Discharge Elimination System;
- San Francisco Bay Conservation and Development Commission Major Permit or Permit Amendment;¹⁴ ~~and~~
- San Francisco Planning Department Mitigated Negative Declaration adoption; and
- San Francisco Airport Commission review and adoption of the Mitigated Negative Declaration and California Environmental Quality Act findings, including the Mitigation Monitoring and Reporting Program.

A.6 CONSTRUCTION SCHEDULE AND COST

The San Francisco Airport Commission currently anticipates that construction would occur in approximately 28 months between 2012 and 2015 with completion by December 31, 2015 in order to comply with the deadline established by P.L. 109-115. A preliminary project schedule is presented on Figure 13. The estimated cost of the SFO RSA Program is \$205 million.

¹⁴ A major permit requires a public hearing and is issued for work that is more extensive than a minor repair or improvement and is determined by the size, location, and impacts of a project. A permit amendment involves the assessment of modifications to an existing permit that has been issued by BCDC.

Task Description	2011				2012				2013				2014				2015			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
ENVIRONMENTAL REVIEW AND PERMITTING																				
NEPA and CEQA Environmental Determinations																				
Environmental Permits Issued				▲																
BID AND CONSTRUCTION PHASE 1: SOUTH AIRFIELD AND 10-28 RUNWAYS																				
South Drainage Improvements ¹																				
Relocation of Electrical Substation																				
Runway 10L-28R and Navigational Aids ²																				
Runway 10R-28L and Navigational Aids ²																				
BID AND CONSTRUCTION PHASE 2: 1-19 RUNWAYS																				
Runway 1L-19R, Taxiways, and Navigational Aids ²																				
Runway 1R-19L, Taxiways, and Navigational Aids ²																				
BID AND CONSTRUCTION PHASE 3: 1-19 RUNWAYS																				
EMAS Installation																				
Airfield Electrical Work, Restriping, and Navigational Aids																				
Flight Check by FAA																				▲

Notes:

CEQA = California Environmental Quality Act
EMAS = Engineered Materials Arresting System
FAA = Federal Aviation Administration
NEPA = National Environmental Policy Act

1. Construction activity in the San Francisco Bay tidal marsh is prohibited from February 1 through August 31.
2. Construction activity in the San Francisco Bay waters is prohibited from December 1 through June 14.

PRELIMINARY SCHEDULE

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

FIGURE 13

B. PROJECT SETTING

The project site is located within SFO approximately 13 miles south of downtown San Francisco. SFO is approximately 5,110 acres and is the largest air carrier airport (serving small/large air carrier aircraft) in the San Francisco Bay Area in terms of operations (a landing, takeoff, or touch-and-go procedure) and enplaned passengers (passengers departing on aircraft). Other air carrier airports in the San Francisco Bay Area include the Oakland International Airport and Norman Y. Mineta San Jose International Airport. The FAA's 2010 Terminal Area Forecast (TAF) shows that SFO had a total of 371,291 annual aircraft operations (landings, takeoffs, or touch-and-go procedures) in 2010.¹⁵ The TAF is the official forecast published by the FAA of the airports in the National Plan of Integrated Airport Systems. The TAF indicates that the total passenger enplanements (passengers departing on aircraft) at SFO were 16,914,820 for the same year. SFO is also important for the transportation of air cargo. In 2010, approximately 426,724 metric tons of air cargo was transported through the Airport. Approximately 23 percent of total flights to and from SFO are international flights, with 47 percent of these flights serving the Asian Continent.¹⁶ SFO is open 24 hours a day, 365 days a year.¹⁷ Of the 5,110 acres that comprise airport property, approximately 2,110 acres are located on land east of U.S. Highway 101 (U.S. 101), 180 acres are located west of U.S. 101, and 2,810 acres are over San Francisco Bay.

SFO is bordered by the San Francisco Bay to the east and is generally bordered by U.S. Highway 101 (U.S. 101) to the west and south. The Airport is surrounded by the cities of Millbrae and Burlingame (to the south), San Bruno (to the west), and South San Francisco (to the north). Existing land uses in the City of South San Francisco are primarily industrial. In the City of San Bruno, immediately west of the Airport and U.S. 101, the existing land use is predominantly single-family residential use, with commercial uses concentrated along San Mateo Avenue and El Camino Real. This land use pattern continues southward into the City of Millbrae, with an increase in multi-family residential use in areas southwest of the Airport and U.S. 101. Large areas of commercial and light industrial land use can be found southeast of the Airport in the City of Burlingame. The nearest parks to the project site include Bay Front Park (0.04 mile) and Bayside Manor Park (0.06 mile).

SFO was incrementally developed from 1927 to 1973 by filling portions of San Francisco Bay. The great majority of the upland area of SFO is paved for use as runways, taxiways, aircraft aprons, and parking, or occupied by terminal buildings and hangars. Several jurisdictional waters of the United States are scattered throughout the runway infields, including seasonal wetlands that consist of topographic depressions that pond water during the rainy season. Artificially constructed drainage features to collect surface runoff are also located throughout the airfield. Within the project site, these include South Detention Basin, South Oxidation Pond, and Bird Ball Ditch. Tidal marshes are also present. Within the project site, these are limited to a band southeast of Runway 1R with an average width of approximately 50 to 100 feet.

¹⁵ FAA, *APO Terminal Area Forecast Detail Report, San Francisco International Airport, Federal Aviation Administration Forecast* Issued December 2009. Available online at: <http://aspm.faa.gov/wtaf/>. Accessed November 17, 2010.

¹⁶ San Francisco International Airport (SFO), Website for San Francisco International Airport. Available online at: <http://www.flysfo.com/>. Accessed on March 2011.

¹⁷ SFO, *Weather and Operations at SFO, A Primer for the Media*, January 2010. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

SFO is served regionally by U.S. 101 and Interstate 380. Locally, the Airport is served by North Access Road, South Airport Boulevard, San Bruno Avenue, Millbrae Avenue, North McDonnell Road, South McDonnell Road, and Old Bayshore Highway. Regional rail service is provided by Bay Area Rapid Transit (BART). The BART terminal is located in the Airport's International Terminal (SFO Airport Station) and connects transit riders to the East Bay, San Francisco, and northern San Mateo County. The SFO Airport Station is accessible from any airport terminal via the AirTrain, a fully automated people-mover system operated by SFO that runs between the Airport terminals, terminal parking garages, Rental Car Center, and BART/SFO Airport Station. BART also provides a connection to Caltrain, a commuter rail service running along the San Francisco Peninsula from San Francisco to San Jose, at the Caltrain/BART Millbrae Station. Bus service to the Airport is operated by San Mateo County Transit District, which runs a fixed-route bus service connecting the Airport to San Francisco, San Mateo County and portions of Palo Alto.

C. COMPATIBILITY WITH EXISTING ZONING AND PLANS

	<i>Applicable</i>	<i>Not Applicable</i>
Discuss any variances, special authorizations, or changes proposed to the Planning Code or Zoning Map, if applicable.	☐	☒
Discuss any conflicts with any adopted plans and goals of the City or Region, if applicable.	☒	☐
Discuss any approvals and/or permits from City departments other than the Planning Department or the Department of Building Inspection, or from Regional, State, or Federal Agencies.	☒	☐

This section of the Initial Study discusses the compatibility of the proposed project with applicable zoning regulations and land use plans, and approvals and/or permits required from City departments other than the Planning and Building Inspection departments, or from regional, state, or federal agencies.

The proposed project would be entirely on airport property, and would not change or affect the use of the land on which the Airport is situated. No variances, special authorizations, or changes to San Francisco's Planning Code or Zoning Map would be proposed or required as a part of the proposed project. Therefore, these issues are not further discussed in this document.

C.1 LOCAL AND REGIONAL PLANS

C.1.1 San Francisco General Plan

The State of California requires all jurisdictions in the state to prepare comprehensive general plans that address the long-term goals and policies for land use for seven planning elements (Government Code Section 65300). These seven elements include Land Use, Circulation, Open Space, Housing, Conservation, Noise, and Safety (Government Code Section 65302). The San Francisco General Plan includes ten elements: seven elements that fall within those mandated by state law as well as elements that address Commerce and Industry, Urban Design, and Arts. The Airport is discussed in the policies included in the General Plan's Transportation Element, which discusses the City's and the region's transportation network and sets out objectives and policies for effectively meeting the transportation needs of the City's residents. General Plan policies 5.1, 5.2, 5.3, and 5.4 address means by which the Airport can be developed to support and enhance the role of San Francisco as a major travel destination and departure point as identified in Objective 5 of the Transportation Element. General Plan Policy 6.5 addresses the means by which the Airport can be accommodated in its role as a freight distribution center. The proposed project, which would enhance aviation safety at the Airport, would not conflict with these objectives or policies.

C.1.2 Proposition M – The Accountable Planning Initiative

In November 1986, San Francisco voters approved Proposition M, the Accountable Planning Initiative (codified as Planning Code Section 101.1), which established planning priority policies to be included in the

General Plan to serve as the basis from which inconsistencies within the plan are to be resolved. The eight Priority Policies are as follows:

1. That existing neighborhood-serving retail uses be preserved and enhanced and future opportunities for resident employment in and ownership of such businesses be enhanced;
2. That existing housing and neighborhood character be conserved and protected in order to preserve the cultural and economic diversity of our neighborhoods;
3. That the City's supply of affordable housing be preserved and enhanced;
4. That commuter traffic not impede San Francisco Municipal Railway transit services or overburden our streets or neighborhood parking;
5. That a diverse economic base be maintained by protecting our industrial and service sectors from displacement due to commercial office development, and that future opportunities for resident employment and ownership in these sectors be enhanced;
6. That the City achieve the greatest possible preparedness to protect against injury and the loss of life in an earthquake;
7. That landmarks and historic buildings be preserved; and
8. That our parks and open space and their access to sunlight and vistas be protected from development.

Planning Code Section 101.1(e) states that prior to issuing a permit for any project or adopting any legislation that requires an initial study under the California Environmental Quality Act (CEQA), and prior to issuing a permit for any demolition, conversion, or change of use, and prior to taking any action that requires a finding of consistency with the General Plan, the City shall find that the proposed project or legislation is consistent with the Priority Policies established above. For any such permit issued or legislation adopted after January 1, 1988, the City shall also find that the project is consistent with the City's General Plan. The proposed project would enhance safety at the Airport and, as stated above would not conflict with the City's General Plan, nor would it conflict with the eight Priority Policies.

C.1.3 Other Local Plans

The Airport is located in unincorporated San Mateo County, with small portions of airport property falling within the boundaries of the cities of South San Francisco and Millbrae. The project site is situated within areas of unincorporated San Mateo County as well as the City of Millbrae. The proposed project would not be in

areas of the Airport that fall within the City of South San Francisco. Regardless, the Airport is wholly owned and operated by the City and County of San Francisco (CCSF), and is not subject to the land use plans or regulations of San Mateo County or the cities of South San Francisco and Millbrae. Any potential conflicts with the land use policies and regulations of the jurisdictions in whose boundaries the Airport is located and that arise from any environmental impacts associated with the proposed project are discussed in Section E of this Initial Study. Because portions of the project site are on land within unincorporated San Mateo County and the City of Millbrae, these jurisdictions' land use plans and regulations are briefly discussed below for purposes of public disclosure.

San Mateo County

The San Mateo County General Plan was adopted in 1986 and applies to areas of unincorporated San Mateo County. The General Plan includes goals and policies for 16 elements that fall within the definition of the seven state-mandated elements, including a separate element that addresses airports. In addition to SFO, there are two general aviation airports operating in the County. SFO is designated in the General Plan as the San Francisco International Airport Special Urban Area. Policies in the County's General Plan addressing SFO are generally focused on improving regional transit access to the Airport or reducing aviation-related noise. Under the San Mateo County Zoning Ordinance, adopted in 1999, the Airport is zoned Light Industrial (M-1). The County's Zoning Ordinance permits a wide variety of industrial uses within the Light Industrial (M-1) zoning district, including air transportation and related activities. The proposed project would improve the RSAs of existing runways at SFO and would not conflict with either the County's General Plan or Zoning Ordinance.

The City of Millbrae

The City of Millbrae General Plan was adopted in 1998 and includes the seven state-mandated elements as described above. The City's General Plan designates the portion of airport property that falls within the City's boundaries as Industrial and Utility and the zoning corresponding to this area is Industrial (I). Airport related policies in the General Plan are generally directed towards improving transportation links to the Airport and reducing aviation-related noise. Land uses permitted in the Industrial (I) zoning district include temporary homeless shelters, light manufacturing, general warehousing, and repair shops. The proposed project would improve the RSAs of existing runways at SFO and would not conflict with either the City of Millbrae's General Plan or its Zoning Ordinance.

C.1.4 Regional Plans

Regional planning in the nine-county San Francisco Bay Area generally falls under five principal regional planning agencies. The agencies and their primary policy plans are as follows:

- The Association of Bay Area Governments, *Projections 2009*

- Bay Area Air Quality Management District, *2010 Clean Air Plan* and *Bay Area 2005 Ozone Strategy*
- Metropolitan Transportation Commission, *Transportation 2035, Change in Motion* and *Regional Airport Plan*
- San Francisco Regional Water Quality Control Board (RWQCB), *Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin*
- San Francisco Bay Conservation and Development District Commission (BCDDC), *San Francisco Bay Plan*

Excluding any potential environmental impacts that would lead to conflicts with relevant regional plans, as discussed in Section E of this Initial Study, the proposed project would not conflict with any of the above identified plans.

C.2 REQUIRED APPROVALS AND PERMITS

The following sections identify the approvals and permits required for completion of the proposed project.

C.2.1 Federal Approvals and Permits

Clean Water Act, Section 404 Permit from the U.S. Army Corps of Engineers (USACE): The Section 404 Permit is required when a proposed project would include dredge and fill activities across rivers, streams, and wetlands or other waters of the United States. As discussed in Topic E.13, Biological Resources, under Impact BI-3 of this Initial Study, the proposed project activities would result in potential impacts to USACE jurisdictional wetlands and other waters of the United States.

Federal Endangered Species Act, Section 7 Consultation with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS): Consultation with USFWS is required if a proposed project would have a potential impact on a federally listed threatened or endangered species. As discussed in Topic E.13, Biological Resources, under Impact BI-1 and Impact BI-2 of this Initial Study, the proposed project has the potential to affect federally listed threatened or endangered animal species.

Federal Magnuson Stevens Fishery Conservation and Management Act, Essential Fish Habitat Consultation with the NMFS. Consultation with NMFS is required if a proposed project may adversely affect Essential Fish Habitat. As discussed in Topic E.13, Biological Resources, under Impact BI-1 of this Initial Study, the proposed project has the potential to affect Essential Fish Habitat.

National Historic Preservation Act, Section 106 Consultation with the State Historic Preservation Officer (SHPO): Consultation with the SHPO is required if the proposed project would have a potential impact on historical or cultural resources. As discussed in Topic E.4, Cultural and Paleontological Resources, under

Impact CP-1 and Impact CP-2 of this Initial Study, the proposed project has the potential to impact archeological resources.

C.2.2 State Approvals and Permits

Amended Airport Permit: An Amended Airport Permit from the California Department of Transportation under California Public Utilities Code (CPUC) Section 21664.5. State Airport Permits are required to operate airports in the State of California under CPUC Section 21001 et seq. (State Aeronautics Act) and the California Code of Regulations, Title 21, Sections 3525-3560, Airports and Heliports. Amended Airport Permits are required when changes are made to runways of existing airports.

California Department of Fish and Game (CDFG) Endangered Species Act, Sections 2080.1(b) and (c), Consistency Determination, and/or State Incidental Take Permit, California Fish and Game Code Section 2050 et seq. (may be required, pending ongoing consultations with CDFG): Under Section 2080.1, the California Department of Fish and Game may rely upon an incidental take permit or incidental take statement issued by the USFWS if the authorization also covers a state-listed species. As discussed in Topic E.13, Biological Resources, under Impact BI-1 and Impact BI-2 of this Initial Study, project activities have the potential to impact state-listed threatened or endangered animal species, and may require issuance of an Incidental Take Permit.

Clean Water Act, Section 401 Permit, Water Quality Certification from the San Francisco RWQCB: This certification is required when a proposed project's construction may result in discharge of dredge or fill material to a water body. This permit may be issued in conjunction with waste discharge requirements, as discussed below.

Clean Water Act, Section 402 Permits, National Pollutant Discharge Elimination System from the State Water Resources Control Board (SWRCB): Permits are required when a proposed project's activities involve point-source discharge of pollutants into waters of the United States. Stormwater discharges at the Airport are regulated by the individual permit currently issued to the Airport for wastewater associated with the Mel Leong Treatment Plant – Industrial Waste Process under National Pollutant Discharge Elimination System Permit Number CA0028070, San Francisco Bay RWQCB Order Number R2 2007 0060. Construction projects that involve disturbance of more than one acre of land require filing a Notice of Intent to the SWRCB and obtaining a Waste Discharge identification number. Additionally, a Storm Water Pollution Prevention Plan is required as part of the General Construction Permit. As discussed in Topic E.15, Hydrology and Water Quality, under Impact HY-1 of this Initial Study, construction of the proposed project would involve disturbance of more than one acre of land and would require authorization under the General Construction Permit.

San Francisco Bay Conservation and Development Commission Permit: The Bay Conservation and Development Commission (BCDC) is empowered by the McAteer-Petris Act (Government Code

Section 66600 et seq.) to issue permits for all San Francisco Bay filling or dredging. Placing fill or dredging in San Francisco Bay requires a permit from BCDC. As discussed in Topic E.1, Land Use, under Impact LU-2 of this Initial Study, a major permit or an amendment to an existing BCDC permit issued to the Airport would be required for San Francisco Bay filling associated with the proposed project.

C.2.3 San Francisco Approvals and Permits

San Francisco Planning Department adoption of the Mitigated Negative Declaration.

San Francisco Airport Commission review and adoption of the Mitigated Negative Declaration and CEQA findings, including the Mitigation Monitoring and Reporting Program.

D. SUMMARY OF ENVIRONMENTAL EFFECTS

The proposed project could potentially affect the environmental factor(s) checked below. The topic areas that are checked are those for which potentially significant impacts are identified in Section E, Evaluation of Environmental Effects. The following pages present a more detailed checklist and discussion of each environmental factor.

- | | | |
|---|--|---|
| ☐ Land Use | ☒ Air Quality | ☒ Biological Resources |
| ☐ Aesthetics | ☐ Greenhouse Gases | ☐ Geology and Soils |
| ☐ Population and Housing | ☐ Wind and Shadow | ☒ Hydrology and Water Quality |
| ☒ Cultural and Paleo. Resources | ☐ Recreation | ☒ Hazards/Hazardous Materials |
| ☐ Transportation and Circulation | ☐ Utilities and Service Systems | ☐ Mineral/Energy Resources |
| ☐ Noise | ☐ Public Services | ☐ Agricultural Resources |
| | | ☐ Mandatory Findings of Significance |

E. EVALUATION OF ENVIRONMENTAL EFFECTS

All items on the Initial Study Checklist that have been checked "Less Than Significant Impact," "No Impact," or "Not Applicable" indicate that, upon evaluation, staff has determined that the proposed project could not have a significant adverse environmental effect relating to that issue. For items that have been checked "Less Than Significant with Mitigation Incorporated," staff has determined that the proposed project would not have a significant adverse environmental effect provided that the project sponsor implements mitigation measures presented in Section F of this Initial Study (see pages 1965 through 21309). A discussion is included for most issues checked "Less Than Significant with Mitigation Incorporated," "Less Than Significant Impact," "No Impact," or "Not Applicable." For all of the items without discussion, the conclusions regarding potential significant adverse environmental effects are based on field observation, staff experience and expertise on similar projects, and/or standard reference material available within the Department, such as the Department's *Transportation Impact Analysis Guidelines for Environmental Review*, or the California Natural Diversity Database (CNDDB) and maps, published by the California Department of Fish and Game (CDFG). For each checklist item, the evaluation has considered the impacts of the project both individually and cumulatively.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
1. LAND USE AND LAND USE PLANNING Would the project:					
a) Physically divide an established community?	☐	☐	☐	☒	☐
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐	☐
c) Have a substantial impact upon the existing character of the vicinity?	☐	☐	☒	☐	☐

The proposed project is set entirely within the boundaries of SFO. The Airport extends into the San Francisco Bay to the east, and is generally bordered by U.S. Highway 101 (U.S. 101) to the west and south. The Airport is surrounded by the cities of Millbrae and Burlingame (south), San Bruno (west), and South San Francisco (north). Existing land use patterns in these areas vary by jurisdiction. Industrial and commercial land uses are located north of the Airport in the City of South San Francisco. In the City of San Bruno, immediately west of the Airport and U.S. 101, existing and planned land use is dominated by single-family residential use, with commercial uses concentrated along San Mateo Avenue and El Camino Real. This land use pattern continues southward into the City of Millbrae, with an increase in multi-family residential use in areas southwest of the Airport and U.S. 101. Large areas of commercial and light industrial land use can be found southeast of the Airport in the City of Burlingame. Various airport-related commercial and industrial uses are also located on airport property between the project site and U.S. 101. (See Figure 14, on page 49, for a map of the Airport and surrounding area.)

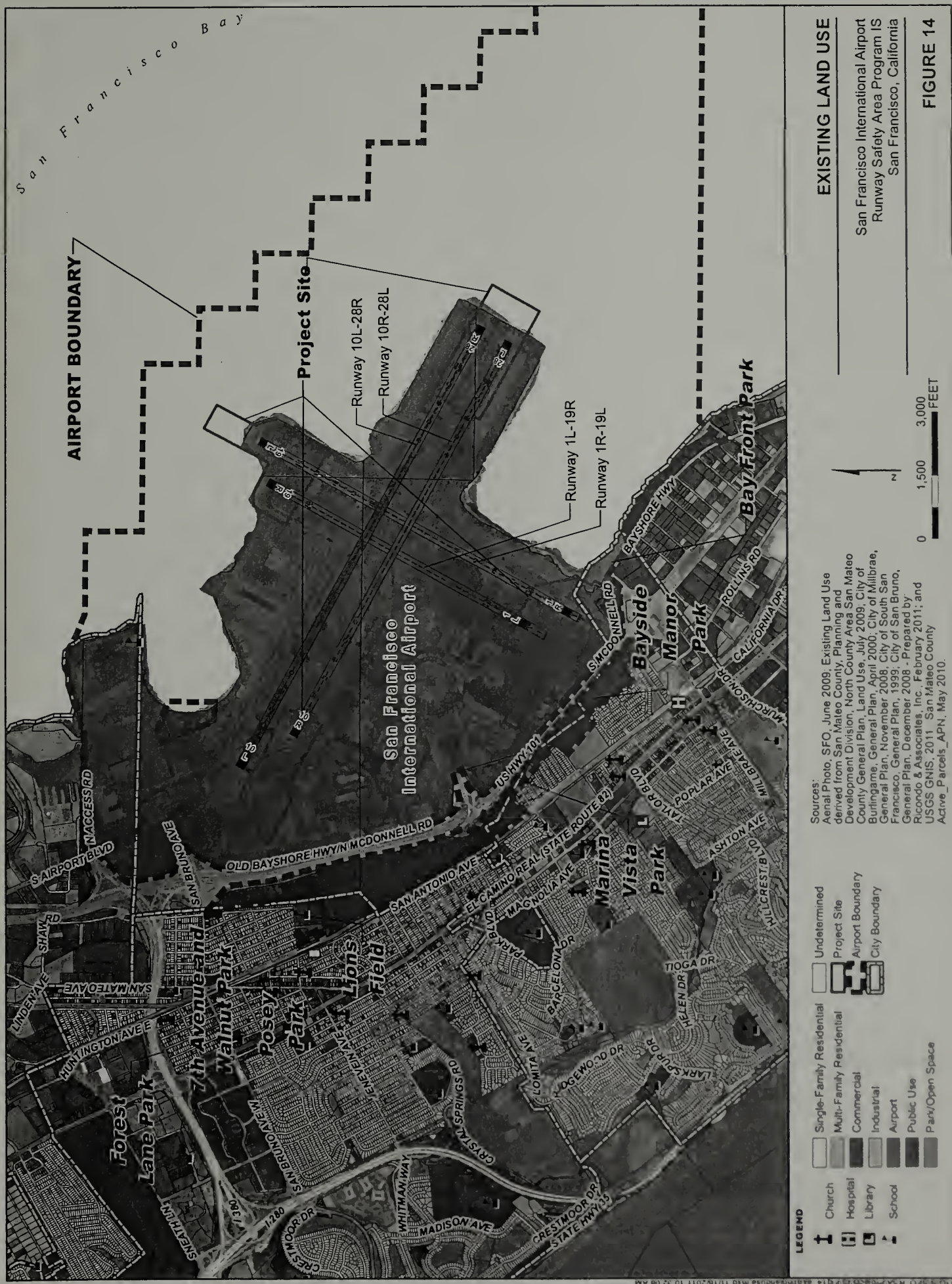
Impact LU-1: The proposed project would not physically divide an established community. (No Impact)

The proposed project involves constructing enhancements to RSAs for existing runways at SFO, and is located entirely on existing airport property. The nearest established community is the City of Millbrae, which is separated from the project site by airport property and U.S. 101. As such, there is no community physically located within or immediately adjacent to the project site. Therefore, the proposed project would not physically divide an established community, and no impact is anticipated.

Impact LU-2: The proposed project would be consistent with applicable land use plans, policies, or regulations of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect. (Less than Significant)

Local Plans

The Airport is located in unincorporated San Mateo County; a small portion of the Airport is located north of the City of South San Francisco, and a small portion is located southwest of the City of Millbrae. However,



because the Airport is wholly owned and operated by the City and County of San Francisco (CCSF), it is not subject to the land use regulations of the municipalities within which it is situated or to which it is contiguous.

The policies of the *San Francisco General Plan* that address the Airport (Policies 5.1, 5.2, 5.3, 5.4, and 6.5 of the Transportation Element) are focused on Airport expansion and improved access to the Airport from surrounding communities. Regardless, these policies are not applicable to the proposed project because the SFO RSA Program would not involve expansion of the Airport or changes that would require improvements to Airport access. The San Francisco Planning Code does not specifically address the Airport because it is not within the boundaries of the CCSF. Hence, the proposed project does not conflict with applicable land use regulations of CCSF.

San Francisco Bay Plan

Portions of the proposed project are within the jurisdiction of the Bay Conservation and Development Commission (BCDC), including portions of airport property that are in the shoreline band (within 100 feet of the mean high-tide line) and areas in San Francisco Bay where Airport-related facilities are installed, such as the approach lighting systems mounted on trestles. BCDC administers the local coastal program under the San Francisco Bay Plan (Bay Plan).¹⁸ Although the majority of the proposed project components would be located outside of BCDC jurisdiction, several components would be constructed within BCDC's 100-foot shoreline band, including portions of the Engineered Materials Arresting System (EMAS) installations north of Runways 19L and 19R, vehicle service road and sea wall realignments using sheet piles, outfall pipe replacements, and taxiway realignments, as described in Section A, Project Description.

A major permit or an amendment to an existing BCDC permit issued to the Airport would be required for San Francisco Bay fill associated with the proposed project. The Bay Plan designates SFO as an Airport Priority Use Area and, as such, the proposed project is consistent with standards for the use of the shoreline. The proposed project would minimize the amount of San Francisco Bay fill required through the installation of EMAS and the use of declared distances, and would require approximately 775 cubic yards (0.04 acre) of San Francisco Bay fill related to the relocation of the vehicle service road and the adjacent sea wall. The proposed project is consistent with Bay Plan policies related to fill, because it would require minimum fill to achieve the project purpose.

The proposed project would not conflict with public access policies of the Bay Plan, because the project is entirely within an active airfield, and public access is currently not permitted in the immediate project vicinity because of safety and security considerations. Furthermore, construction activities associated with the proposed project would not disrupt public access to recreation opportunities or facilities located near or adjacent to the Airport.

¹⁸ San Francisco Bay Conservation and Development Commission (BCDC), *San Francisco Bay Plan* (Bay Plan), Reprinted February 2008. Available online at: <http://www.bcdc.ca.gov/pdf/planning/plans/bayplan/bayplan.pdf>.

As described in Topic E.2, Aesthetics, the proposed project would not result in significant changes in appearance along the shoreline, because the majority of the proposed project components would be at-grade, and the structures that would be relocated or constructed would be consistent with the existing visual character of the Airport. As such, the proposed project would not result in conflicts with the appearance, design, and scenic view policies of the Bay Plan.

The proposed project would not conflict with Bay Plan resource policies, including water quality and wildlife policies. No adverse operations or construction-related water quality impacts would result from the proposed project, which would not introduce new activities or pollutants to the San Francisco Bay. Modifications to the existing seawall would result in potential direct and indirect impacts to tidal marsh and California Clapper Rail habitat. These impacts would be avoided, minimized, and compensated for by implementation of mitigation measures, including compensation for 0.04 acre of direct and indirect impacts to tidal marsh and associated California clapper rail habitat (see Topic E.13, Biological Resources). The proposed project, including San Francisco Bay fill associated with construction activities, is consistent with the policies in the Bay Plan.

The proposed project would not conflict with land use plans, policies, or regulations of CCSF or the Bay Plan, and associated impacts would therefore be less than significant.

Impact LU-3: The proposed project would not have a substantial impact upon the existing character of the project vicinity. (Less than Significant)

The proposed project would not result in a change in land uses at either the Airport or areas in the Airport vicinity. The surrounding communities in the project vicinity are currently exposed to airport noise conditions (refer to discussion of existing land use character above). As discussed in Topic E.6, Noise, of this Initial Study, less-than-significant noise impacts would occur at some locations due to runway shifts. Industrial land uses are compatible with the projected noise levels and would not be significantly impacted by the proposed project. Potential impacts to open space land uses would also be less than significant and are further discussed in Topic E.10, Recreation, of this Initial Study. While the increase in noise levels could represent a potential impact to residential uses, all single-family residential parcels that could be affected were previously invited to participate in the Airport's Residential Sound Insulation Program (RSIP). The single-family residences have been noise-insulated, or the owners of the remaining parcels have declined to participate in the RSIP. Noise-sensitive uses that have received, or have been offered, noise insulation as part of an FAA-approved noise insulation program are not considered to be noise-sensitive land uses for the purposes of determining noise impacts. Therefore, the proposed project would have a less-than-significant impact on the existing character of the project vicinity (see also Topic E.2, Aesthetics, of this Initial Study).

Impact C-LU: The proposed project, in combination with past, present and reasonably foreseeable future projects at the Airport and project vicinity, would result in less-than-significant cumulative impacts on land use. (Less than Significant)

Past and present development has changed the character and land uses in the project vicinity from undeveloped bay and marshland to a bustling international airport served by a complex transportation network, industrial and commercial activities, and residential neighborhoods. Table 6 lists and describes more recent past projects that have been constructed, projects currently under construction, and reasonably foreseeable projects that have been approved but not yet constructed at, or in the vicinity of, SFO that have also been considered in this Initial Study for potential cumulative impacts in the resource categories evaluated. Spatial and temporal boundaries were delineated to ascertain appropriate parameters for analysis of cumulative effects, which could include distance from the proposed project, impacts that may be related, and construction timing. Projects considered in this evaluation have the potential for impacts to all or some of the resource categories evaluated in this Initial Study, and the spatial boundaries include a geographic area(s) close enough to the Airport that there could be cumulative impacts from the proposed project, other on-airport projects, and nearby projects. General types of on-airport projects include, but are not limited to, runway reconstruction, terminal redevelopment, roadway development, and air traffic control tower relocation. Off-airport development projects include a medical center, ferry terminal, office buildings, roadway projects, and a business park.

The appropriate spatial boundaries for analysis of cumulative land use impacts include all past and present development, and all projects in Table 6. Because the proposed project would have no potential to physically divide an established community, there would be no off-airport development projects that would be relevant to this potential cumulative impact. All on-airport improvements by their nature would not physically divide an established community.

All on-airport projects support airport improvements and conform to the San Francisco General Plan Transportation Element's policies that address development at the Airport, and are consistent with General Plans of San Mateo County and the City of Millbrae, to the extent these plans apply to cumulative projects. Cumulative projects within 100 feet of the shoreline require consistency with the Bay Plan through the BCDC permitting process. The proposed project would require a major permit or an amendment to an existing BCDC permit issued to the Airport.

Development projects in the surrounding area would result in physical changes that would introduce new land uses in already developed areas or new land use features in areas not currently developed. Although developments would result in noticeable physical changes to the vicinity, such changes would not result in a significant cumulative land use impact because the uses would be consistent with applicable plans and zoning ordinances and surrounding development. The SFO RSA Program involves constructing enhancements to the RSAs for existing runways at SFO, and is located entirely on airport property. The proposed project, along with other proposed projects on airport property, is consistent with existing uses at the Airport and the

character of the project site and vicinity. Hence, the proposed project would have less-than-significant cumulative land use impacts.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
2. AESTHETICS Would the project:					
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and other features of the built or natural environment which contribute to a scenic public setting?	☐	☐	☐	☒	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area or which would substantially impact other people or properties?	☐	☐	☒	☐	☐

A visual quality/aesthetic analysis is somewhat subjective and considers the project design in relation to the surrounding visual character, heights, and building/structure types of surrounding uses, its potential to obstruct scenic views or vistas, and its potential for light and glare. The proposed project's specific design would be considered to have a significant adverse environmental effect on visual quality only if it would cause a substantial demonstrable negative change.

Impact AE-1: The proposed project would not have a substantial adverse effect on scenic vistas. (Less than Significant)

The project would be developed entirely on existing airport property. Most of the proposed project improvements would be constructed at-grade; relocated navigational aids would be similar to those that exist currently and are generally visible only on the Airport and from the air. Views from the Airport consist primarily of industrial, commercial, and residential development toward the west and the San Francisco Bay and East Bay Hills to the east. Natural features that remain are flat and previously disturbed, and therefore are not pristine in appearance. The project area is level, with little or no discernible relief, which is necessary for operation of aircraft on the runways and taxiways. Views toward the Airport are available from residential neighborhoods in the surrounding hills of the cities of San Bruno, Millbrae, Burlingame, and San Mateo, which can be characterized as having a scenic view of San Francisco Bay and the East Bay Hills, with the Airport in the foreground.

Table 6
Past, Present, and Reasonably Foreseeable Actions

	Project Name	Location	Description
Past	Shoreline Protection and Security Project	On SFO Property	This project is to construct a seawall with an lineal length of 14,175 feet and 10 feet high, within BCDC jurisdiction.
	SFO Executive Airport Addition and New Hangar C	On SFO Property	The project is the addition of approximately 2,400 square feet to the existing 26-foot-tall, 10,000-square-foot Executive Terminal, built in 1996, and construction of a new 37-foot-tall, 25,000-square-foot aircraft storage Hangar C containing approximately 4,000 square feet of hangar service office space at the northern edge of SFO.
	Runway 1-19L Overlay and Reconstruction	On SFO Property	Reconstruction of approximately 200,000 square yards of runway and taxiway pavement. The project will overlay and reconstruct Runway 1R-19L to repair deteriorating pavement, improve the surrounding drainage system, upgrade the electrical runway and taxiway lighting system, and repaint runway markings to improve visibility and improve safety for aircraft on the airfield.
	Runway 28R-10L Overlay and Reconstruction	On SFO Property	This project is to repair structural damages on Runway 10L-28R to level the runway profile, widen shoulder pavement, upgrade electrical lighting system, and to incorporate the most current FAA-AC guidelines pertaining to the runway-related issues.
	Peninsula Medical Center Replacement (NOD Sep 2005)	El Camino Real/Trousdale Drive, Burlingame, 0.7 mile south of nearest project component	Replacement of the existing Peninsula Medical Center Hospital and related medical office buildings with a new hospital, medical office building, and parking garage. The existing hospital will be demolished after the replacement project is built. The replacement project will consist of an approximately 440,000 square feet, six- to seven-story hospital building, attached to an approximately 150,000 square feet, five-story medical office building, and a separate parking garage with approximately 809 spaces, as well as approximately 681 surface parking spaces. The project additionally includes a helipad and various street and pedestrian improvements.
	Britannia East Grand	470-660 E. Grand, South San Francisco, 1.6 miles north of nearest project component	This project includes construction of nine Office/R&D buildings totaling 780,000 square feet on a 26.9-acre site.
	South City Lights	Gellert Blvd./Westborough Blvd, South San Francisco, 3.1 miles northwest of nearest project component	The South City Lights project includes 280 condominium units within six buildings on a 14.9-acre site.
Present	Terminal 2 Redevelopment	On SFO Property	The proposed T2 renovation would convert the facility from a 10-gate international widebody aircraft terminal to a 14-gate domestic narrowbody aircraft terminal. The renovation project includes the terminal building's interior space, including holdrooms, concession spaces, baggage claim areas, and building systems.
	Hydrogen/Hythane Fueling Station	On SFO Property	The proposed facility, located on South McDonnell Road, south of Runways 1L and 1R, would dispense two types of alternative fuels – pure hydrogen and hythane, a mixture of hydrogen and CNG. Approximately 5,000 square feet of the 45,000-square-foot lot would be developed under this project.
	WTA South San Francisco Ferry Terminal	Oyster Point Boulevard/Marina Boulevard, South San Francisco, 2.4 miles north of nearest project component	The project includes construction of a ferry terminal (passenger waiting area, gangway ramp and float), bus terminal, striping for 56 vehicles, and reconfigured circulation and access. About 124 berths would be removed to create a path for entering and exiting ferries. Dredging under this project would occur at the entrance channel and inner basin area to accommodate ferries.
	Millbrae Water Pollution Control Plant Flow Equalization	Millbrae Avenue/U.S. 101, Millbrae, 0.1 mile south of nearest project component	The Flow Equalization Project will install a new 1.21 million-gallon flow equalization tank and associated pump stations, pipeline, and other appurtenances at the City's Wastewater Pollution Control Plant. The project will also replace and or upgrade other onsite facilities and will construct a new 8,400-square-foot Operations Center.
	The Crossing, Parcels 3 and 4	El Camino Real/I-380, San Bruno, 1.1 miles northwest of nearest project component	This project includes 350 residential units, of which 187 will be condominium units and 163 will be apartment units. The units will be in two buildings; Building 1 will contain the 163 apartment units and Building 2 will contain the 187 condominium units. The buildings will be 5 stories with two levels of subterranean parking.
	249 East Grand Avenue, Office/R&D	249 E. Grand Avenue, South San Francisco, 1.8 miles north of nearest project component	This project includes four Office/R&D buildings totaling approximately 540,000 square feet, and a four-level parking garage on a 15.75-acre site.
	Terrabay Phase II/III	U.S. 101, fronting Airport Blvd, South San Francisco, 2.6 miles north of nearest project component	The Terrabay Phase II/III project consists of constructing two office towers totaling 665,000 square feet, 24,000 square feet of commercial space, a 200-seat performing arts center, and a 100-child daycare center.
Future	Airport Traffic Control Tower Relocation	On SFO Property	This project consists of relocating the existing ATCT to modernize equipment and expand to accommodate new FAA technology and recent expansion projects at SFO. Construction scheduled September 2011 through May 2014; demolition August through October 2015.
	Boarding Area E Renovation	On SFO Property	This project includes airfield and terminal system improvements to the baggage handling system, utilities, moving conveyances, telecommunications, terminal systems, architectural improvements, holdroom seating, and building code compliance upgrades. Work is to begin in mid-2011, after Terminal 2 redevelopment is complete.
	Reconstruction of aircraft aprons at Boarding Areas C, E, F, G, and Plot 40	On SFO Property	This project involves reconstruction of the aircraft parking aprons to repair deteriorating and unlevel pavement and underground utilities. Plot 40 is immediately east of the Signature Terminal and is used by United and American airlines. Underground utilities may include storm water drainage, apron lighting, and water. The project is needed to maintain serviceability of the pavement and to replace the existing pavement due to normal wear and tear on the pavement from heavy usage. The areas are the probable limits of the proposed apron and taxiway reconstruction areas, for a combined project total area of approximately 546,000 square yards. Construction is anticipated to occur between 2010 and 2011.

Table 6
Past, Present, and Reasonably Foreseeable Actions (Continued)

	Project Name	Location	Description
Future	Terminal 1 Renovation & Boarding Area B	On SFO Property	This project involves renovation of Terminal 1 and phased redevelopment of Boarding Area B. The terminal building and Boarding Area B were built in the 1960s. Boarding Area C was built in the 1980s. The demolition and reconstruction of existing Boarding Area B was to occur in two phases and is described in the Master Plan ¹ and in the Master Plan EIR. In 2006, the Airport initiated a planning study for the redevelopment of Terminal 1. As of June 2010, the implementation time frame begins with preparatory work in 2011 to completion in 2026. Construction is anticipated to begin in 2011, and phased in through 2026.
	South McDonnell Road Realignment	On SFO Property	Under this project, S. McDonnell Road would be realigned through the former Hilton site to create more overnight aircraft parking spaces. Construction may begin anytime between 2011 and 2014.
	Reclaimed Water System Project	On SFO Property	Under this project, the secondary effluent produced at MLTP would be treated to meet the requirements of Title 22 water for reuse as non-potable water throughout the Airport. Phase I includes installation of underground pipelines to distribute treated water from the MLTP to storage tanks at Lot C, construction of tertiary and advanced treatment facilities at the MLTP; construction of an advanced treatment facility and hydro-pneumatic tank at Lot C; retrofitting of five (5) existing storage tanks at Lot C; and the installation of distribution pipelines from the MLTP to Lot C and the Terminal 2 Building. Phase II includes construction of one (1) tertiary and two (2) advanced treatment facilities; installation of a distribution system; the retrofitting of storage tanks; and the installation of the Supervisory Control and Data Acquisition system. In Phase III, irrigation pipelines would be installed along the McDonnell Road corridor. Construction is estimated to begin in February 2012 and be completed in about 8 months.
	U.S. 101/Broadway Interchange	U.S. 101/Broadway, Burlingame, 1.4 miles southeast	The California Department of Transportation, in cooperation with the San Mateo County Transportation Authority, proposes to reconfigure the U.S. 101/Broadway Interchange in the City of Burlingame, County of San Mateo, California. The purpose of the project is to improve traffic movements and access around the interchange, accommodate future traffic increases at adjacent intersections, improve operations at the southbound U.S. 101 ramps, and increase bicyclist and pedestrian access. The length of the project is 0.76 mile. Environmental review was concluded in 2011. Construction is estimated to begin in 2014.
	San Bruno Caltrain Station Relocation	San Mateo Ave/San Bruno Ave, San Bruno, 0.7 mile northwest	This project consists of relocation of San Bruno Caltrain station, and grade separation of the right of way. The construction contract was awarded in July 2010. Construction began in November 2010 and is estimated to be completed by February 2013.
	406 San Mateo Mixed-Use Project	406 San Mateo Ave, San Bruno, 0.7 mile west	This project consists of demolition of the old theater building and three adjacent bars in downtown to construct a mixed-use building with 48 condominium units, 14,600 sf of ground floor retail, and 152 parking spaces. Approved by City Council, January 2009; construction pending.
	Pacific Bay Vistas (former Treetop Apartments)	4300 Susan Drive (Skyline Blvd./Sharp Park Rd), San Bruno, 3.7 miles west	This project has been approved for two different alternatives: (1) The demolition of 308 existing units and construction of 510 new apartment units; and (2) the renovation of the existing 308 apartment units, construction of a new clubhouse/leasing office and associated site and landscape improvements. Approved by City Council, June 2010; construction pending.
	350 Beach Road (former Burlingame drive-in theater)	350 Beach Road, Burlingame, 1.7 miles southeast	This project consists of new office/life science campus consisting of four buildings and a total of 730,000 sf of floor area on an 18.13-acre site. Two 5-story, one 7-story, and one 8-story building are also proposed, along with a five-story parking structure. All buildings will be on the site of former Burlingame Drive-In Theater. The project was submitted in April 2010, and is under city planning and environmental review.
	Britannia Point Grand Development	250-270 E. Grand Avenue, South San Francisco, 1.7 miles north	This project consists of demolishing four existing buildings and constructing three Office/R&D buildings (461,500 sf total) and an 8-level parking garage on property located in a 30.5-acre site. One building is complete; three buildings and one parking garage were also approved.
	494 Forbes, Office/R&D	494 Forbes Blvd, South San Francisco, 1.9 miles north	Under this project, two four- to five-story Office/R&D buildings totaling 326,020 sf and a three-level parking structure would be constructed on a 7.48-acre site. Under city planning and environmental review.
	Gateway Business Park	800-1000 Gateway, South San Francisco, 2.2 miles north	This project consists of Master Plan approval for four parcels totaling 22.6 acres. Gateway Precise Plan includes demolition of two buildings and a childcare facility and construction of two six-story Office/R&D buildings totaling 359,800 sf with a 6-story parking garage on a 8.3-acre site. Approved February 2010. Building plans not yet submitted; construction start date unknown.

Notes:

AC = Advisory Circular
 ATCT = Airport Traffic Control Tower
 BCDC = Bay Conservation and Development Commission
 CNG = compressed natural gas
 EIR = Environmental Impact Report
 FAA = Federal Aviation Administration
 I-380 = Interstate 380
 MLTP = Mel Leong Treatment Plant
 R&D = research and development
 SFO = San Francisco International Airport
 U.S. 101 = U.S. Highway 101

The SFO RSA Program involves minor changes to existing runways and associated navigational aids that would not significantly change views from the surrounding residential neighborhoods in the hillside areas. Viewers from the hillside areas would not be able to discern the minor changes to the runways or notice the relocation of the navigational aids or the addition of Runway Status Lights. Other buildings, such as the relocation of the substation or construction of a pump station, would blend into the existing visual character of the Airport and would not significantly alter these views. Therefore, impacts to scenic views and vistas from the proposed project would be less than significant.

Impact AE-2: The proposed project would not substantially damage scenic resources. (No Impact)

The SFO RSA Program improvements would be constructed at-grade and relocated navigational aids would be similar to those that exist currently. No resources of the built or natural environment occur at the project site that contribute to a scenic public setting, or would be affected by the proposed project. Therefore, no impacts to scenic resources of the built or natural environment would occur as a result of implementation of the proposed project.

Impact AE-3: The proposed project would not substantially degrade the existing visual character or quality of the site and its surroundings. (Less than Significant)

The project vicinity is mostly built out and, other than the Airport itself, consists of surrounding industrial, commercial, and residential development. Natural features that remain are maintained to be flat and have been previously disturbed, and therefore are not pristine in appearance. To the east of SFO is San Francisco Bay. The project area is level, particularly at the Airport. The proposed project mostly involves minor changes to existing runways and associated navigational aids and would not result in a substantial demonstrable negative effect on the visual character or quality of the project site or its surroundings. Therefore, the proposed project's impact on visual character or quality would be less than significant.

Impact AE-4: The proposed project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area or which would substantially impact other people or properties. (Less than Significant)

The proposed project would require the relocation of runway and taxiway lights and signage; modifications to existing illuminated navigational aids; and the installation of runway status lights at runway ends, taxiway crossings, and entrances to runways. However, these changes to the existing lighting system would be at-grade, and would not result in significant additional, glare-inducing features in nearby locations. The lights would be situated on the runways and would not create an annoyance among people in the vicinity or interfere with activities during the day or night.

Temporary construction activities associated with the SFO RSA Program are anticipated to occur between 2012 and 2015. Night-time lighting would be required for construction activities that need to be completed at

night. Construction lighting would be situated in the vicinity of existing runways and would be directed so that it would not introduce significant additional glare or create annoyance among people in the project area. Therefore, light or glare emission impacts would be less than significant.

Impact C-AE: The proposed project, in combination with past, present, and reasonably foreseeable future development in the project area, would result in less-than-significant cumulative impacts to aesthetic resources. (Less than Significant)

Past and present development in the project vicinity has changed the once-pristine views of San Francisco Bay and the East Bay Hills, as well as the shoreline adjacent to the Airport, to an industrial landscape supported by a network of freeways. Cumulative development, including projects listed in Table 6 (on pages 553 and 564), could result in impacts to aesthetic resources that could combine with the aesthetic impacts of the proposed project. Cumulative impacts to aesthetic resources at and near the airport, however, would not be considered significant. As discussed above, the proposed project would not obstruct scenic views of the Airport from surrounding hillsides, and the project components and changes would not be discernable from a distance. The project vicinity is mostly built out, and consists of industrial, commercial, and residential development, and a network of freeways. Also as discussed above, the proposed project would primarily consist of new runway areas at ground level, which would not obstruct scenic views of San Francisco Bay, San Bruno Mountains, and the distant East Bay hills. The project would not be discernable from a distance. The proposed project would not damage any scenic resources of the natural or built environment, and would not result in substantial demonstrable impacts to visual character and quality. Project operations, alterations to the illuminated navigational aids in the airfield area and in the San Francisco Bay, and the installation of runway status lights would not create significant new sources of light and glare that could adversely affect day or nighttime views. In light of the above, the proposed project would result in less-than-significant cumulative impacts to aesthetic resources.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
3. POPULATION AND HOUSING Would the project:					
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒	☐
b) Displace substantial numbers of existing housing units or create demand for additional housing, necessitating the construction of replacement housing?	☐	☐	☐	☒	☐
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒	☐

Impact PH-1: The proposed project would not induce substantial population growth in the area, either directly or indirectly. (No Impact)

The proposed project would enhance aviation safety at SFO but there would be no increase in airport operations, or in the number of passengers or aircraft operations at the Airport. The proposed project would be developed on existing airport property, and no housing, businesses, or industries would be acquired for the proposed project. Substantial population growth would not occur as a result of construction of the proposed project because of the large existing construction labor pool present in the San Francisco Bay Area. Consequently, the SFO RSA Program would not result in increased levels of traffic on roadways in the project vicinity, disrupt the surrounding community, or result in long-term impacts on local businesses. Therefore, no direct or indirect impacts to population growth would occur within the project vicinity.

Impact PH-2: The proposed project would not displace substantial numbers of existing housing units or create demand for additional housing, necessitating the construction of replacement housing in the area or elsewhere. (No Impact)

The proposed project would be developed on existing airport property and would not displace existing housing that is located outside airport lands. Therefore, the proposed project would have no impact related to the displacement of housing or people within the area.

Impact PH-3: The proposed project would not displace substantial numbers of people, necessitating the construction of replacement housing elsewhere. (No Impact)

The proposed project would be developed on existing airport property and would not result in the displacement of people requiring construction of replacement housing elsewhere. Therefore, the proposed project would have no impacts related to the displacement of people, or to construction of replacement housing within the area.

Impact C-PH: The proposed project would not contribute to cumulative impacts on population and housing. (No Impact)

Development in the surrounding project area is primarily industrial, with some recreation and residential uses. The proposed project would not add new residents, displace existing residents or businesses, or require construction of new housing. The proposed project would not increase airport operations, or the number of passengers or aircraft operations at the Airport. For the reasons discussed above, the proposed project would not contribute to any cumulative impacts on population and housing.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
4. CULTURAL AND PALEONTOLOGICAL RESOURCES Would the project:					
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco Planning Code?	☐	☒	☐	☐	☐
b) Cause a substantial adverse change in the significance of an archeological resource pursuant to §15064.5?	☐	☒	☐	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐	☐

Impact CP-1: The proposed project would not cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco Planning Code. (Less than Significant with Mitigation)

Under the California Environmental Quality Act (CEQA), a historical resource (these include built-environment historic and prehistoric archeological resources) is considered significant if it meets the criteria for listing on the California Register of Historical Resources (CRHR). These criteria are set forth in CEQA Guidelines Section 15064.5, and define as significant any resource that:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Is associated with lives of persons important in our past;
- Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

- Has yielded, or may be likely to yield, information important in prehistory or history.

Resources that are listed, or formally determined to be eligible for listing, on the National Register of Historic Places (NRHP) are automatically listed in the CRHR, and are thus considered historical resources for CEQA purposes.

Article 10 and Article 11 of the San Francisco Planning Code pertain to individual city landmarks and historic districts, and to conservation districts located in the city's downtown core area (C-3 districts), respectively. Article 10 of the San Francisco Planning Code sets forth proposals for city landmark designations with the aid of the NRHP Criteria in evaluating a resource's historic significance. Article 11, Section 1102 of the San Francisco Planning Code codifies the criteria for evaluating buildings in the C-3 districts of the city. Because the SFO RSA Program does not propose improvements in C-3 districts, and there is no designated city landmark or district in the SFO property and SFO RSA Area of Potential Effect (APE), Article 10 and Article 11 would not apply to the proposed project.¹⁹

Baseline conditions for archeological and historic architectural resources located within the SFO RSA Program APE are presented in technical reports produced for the proposed project and summarized in this topic of the Initial Study.^{20,21} For the present undertaking, the APE for archeological resources is congruent with the limits of proposed ground-disturbing activities associated with project implementation. Excavations would vary between 1 foot and 25 feet below ground surface (bgs) in imported fill material and Young Bay Mud. For historic architectural resources, the APE is also congruent with the limits of proposed new ground-disturbing activities, because the proposed project would not affect the number or type of aircraft using the Airport or result in indirect effects from aircraft noise.

Archeological Resources

Inventory efforts for archeological resources included a review of ethnographic and historic literature and maps, archeological base maps and site records, survey reports, and atlases of historic places on file at the Northwest Information Center (NWIC) of the California Historical Resources Information System at Sonoma State

¹⁹ Tara Sullivan, Historic Preservation Planner, San Francisco Planning Department, Memorandum, April 20, 2011, to Irene Nishimura, San Francisco Planning Department. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

²⁰ Mark Hale, Archeological Inventory Report, Runway Safety Area Program, San Francisco International Airport, San Francisco County, California, June 2011. Prepared by Mark Hale of URS Corporation. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

²¹ Jeremy Hollins and Melanie Lytle, Historic Architecture Survey Report, Runway Safety Area Program, San Francisco International Airport, San Francisco County, California, June 2011. Prepared by Jeremy Hollins and Melanie Lytle of URS Corporation. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

University; Native American contacts; and an archeological pedestrian reconnaissance.²² No archeological resources, CRHR-eligible or otherwise, were identified within the confines of the SFO RSA Program APE.

Current conditions, including history of reclamation, extent of current development, and evidence of subsurface conditions as evidenced from past geotechnical investigations, were considered to evaluate the potential for exposing previously undiscovered archeological sites during project implementation (i.e., excavation).

This analysis revealed that all of the excavations associated with the SFO RSA Program are confined to the layer of imported material used to reclaim this portion of San Francisco Bay and the deposit of Young Bay Mud that underlies the imported fill. As detailed in the archeological technical report, both these strata are of low to very low archeological sensitivity.²³ As such, it is not anticipated that the proposed project would result in the inadvertent discovery of undocumented archeological resources.

Although unlikely, the inadvertent discovery of buried archeological resources cannot be completely eliminated. As such, ground-disturbing construction activities have the potential to inadvertently expose and therefore affect previously unknown archeological resources, including those that may be CRHR-eligible. The inadvertent exposure of a previously unknown archeological resource would be a potentially significant impact. Implementation of **Mitigation Measure CP-1, Accidental Discovery Measures**, would reduce impacts to historical archeological resources, as defined in Section 15064.5, to a less-than-significant level.

Mitigation Measure M-CP-1 – Accidental Discovery Measures

The following mitigation measure shall be required to avoid any potential adverse effect from the proposed project on accidentally discovered buried or submerged historical resources as defined in *CEQA Guidelines* Section 15064.5(a)(c). The project sponsor shall distribute the Planning Department archeological resource “ALERT” sheet to the project prime contractor; to any project subcontractor (including demolition, excavation, grading, foundation, or pile driving firms); or to any utilities firm involved in ground-disturbing activities within the project site. Prior to any ground-disturbing activities being undertaken, each contractor is responsible for ensuring that the “ALERT” sheet is circulated to all field personnel, including machine operators, field crew, pile drivers, and supervisory personnel. The project sponsor shall provide the Environmental Review Officer (ERO) with a signed affidavit from the responsible parties (prime contractor, subcontractor(s), and utilities firm) to the ERO confirming that all field personnel have received copies of the Alert Sheet.

Should any indication of an archeological resource be encountered during any ground-disturbing activity of the project, the project Head Foreman and/or project sponsor shall immediately notify the

²² Supra note 20.

²³ Ibid.

ERO and shall immediately suspend any ground-disturbing activities in the vicinity of the discovery until the ERO has determined what additional measures should be undertaken.

If the ERO determines that an archeological resource may be present within the project site, the project sponsor shall retain the services of an archeological consultant from the pool of qualified archeological consultants maintained by the Planning Department archeologist. The archeological consultant shall advise the ERO as to whether the discovery is an archeological resource, retains sufficient integrity, and is of potential scientific/historical/cultural significance. If an archeological resource is present, the archeological consultant shall identify and evaluate the archeological resource. The archeological consultant shall make a recommendation as to what action, if any, is warranted. Based on this information, the ERO may require, if warranted, specific additional measures to be implemented by the project sponsor.

Measures might include preservation in situ of the archeological resource; an archeological monitoring program; or an archeological testing program. If an archeological monitoring program or archeological testing program is required, it shall be consistent with the San Francisco Planning Department, Environmental Planning Division guidelines for such programs. The ERO may also require that the project sponsor immediately implement a site security program if the archeological resource is at risk from vandalism, looting, or other damaging actions.

The project archeological consultant shall submit a Final Archeological Resources Report (FARR) to the ERO, evaluating the historical significance of any discovered archeological resource and describing the archeological and historical research methods employed in the archeological monitoring/data recovery program(s) undertaken. Information that may put at risk any archeological resource shall be provided in a separate removable insert within the final report.

Copies of the Draft FARR shall be sent to the ERO for review and approval. Once approved by the ERO, copies of the FARR shall be distributed as follows: California Archeological Site Survey NWIC shall receive one copy and the ERO shall receive a copy of the transmittal of the FARR to the NWIC. The San Francisco Planning Department, Environmental Planning Division shall receive three copies of the FARR, along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the NRHP/CRHR. In instances of high public interest or interpretive value, the ERO may require a different final report content, format, and distribution than that presented above.

Historic Architectural Resources

Inventory efforts for historic architectural resources included a review of ethnographic and historic literature and maps, archeological base maps and site records, survey reports, and atlases of historic places on file at the NWIC of the California Historical Resources Information System at Sonoma State University; supplementary

archival research; and a reconnaissance of the historic architecture APE.²⁴ No CRHR-eligible resources were identified within the SFO RSA Program APE during either the pre-field or field inventory efforts.²⁵ The project, as proposed, would have less-than-significant impacts on historical architectural resources as defined in CEQA Section 15064.5 because there are no such resources within the SFO RSA Program APE.²⁶

Impact CP-2: The proposed project would cause a substantial adverse change in the significance of an archeological resource pursuant to Section 15064.5. (Less than Significant with Mitigation)

In addition to assessing impacts to archeological resources meeting the requirements for listing as historical resources, impacts to unique archeological resources are also considered under CEQA, as described in Section 15064.5, as well as under California Public Resources Code (PRC) (Section 21083.2). If an archaeological site does not meet the criteria for inclusion on the CRHR (as described elsewhere in this topic of the Initial Study), but does meet the definition of a unique archaeological resource as outlined in PRC 21083.2, it is entitled to special protection or attention under CEQA. A unique archaeological resource implies an archaeological artifact, object, or site about which it can be clearly demonstrated that—without merely adding to the current body of knowledge—there is a high probability that it meets one of the following criteria:

- The archaeological artifact, object, or site contains information needed to answer important scientific questions, and there is a demonstrable public interest in that information;
- The archaeological artifact, object, or site has a special and particular quality, such as being the oldest of its type or the best available example of its type; or
- The archaeological artifact, object, or site is directly associated with a scientifically recognized important prehistoric or historic event or person.

A non-unique archaeological resource indicates an archaeological artifact, object, or site that does not meet the above criteria. Impacts to non-unique archaeological resources and resources that do not qualify for listing on the CRHR receive no further consideration under CEQA.

No previously recorded archeological resources have been identified within the footprint of the proposed project. Potential impacts to previously unidentified unique archeological resources causing a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5 would be the same as described in this topic of the Initial Study, potentially significant, and implementation of **Mitigation Measure CP-1**, detailed above, would be required. As such, potential impacts to other archeological resources as addressed under either Section 15064.5 or PRC 21083.2 would be less than significant with mitigation.

²⁴ Supra note 21.

²⁵ *Ibid.*

²⁶ Supra note 19.

Impact CP-3: The proposed project would not directly or indirectly destroy a unique paleontological resource or site. (Less than Significant)

PRC Section 5097.5 prohibits excavation or removal of any “vertebrate paleontological site, or any other archeological, paleontological, or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands.” Public lands are defined to include lands owned by or under the jurisdiction of the state or any city, county, district, authority, or public corporation, or any agency thereof. Section 5097.5 also states that any unauthorized disturbance or removal of archeological, historical, or paleontological materials or sites located on public lands is a misdemeanor. Section 30244 requires reasonable mitigation for impacts to paleontological resources that occur as a result of development on public lands.

The proposed project would be constructed on strata comprised entirely of imported fill and Young Bay Mud, neither of which typically contains vertebrate paleontological remains or unique geologic features. Because there is little likelihood of accidental discovery of paleontological resources or unique geological features during project construction, there would be a less-than-significant impact to unique paleontological resources or geologic features with project implementation.

Impact CP-4: The proposed project could disturb human remains, including those interred outside of formal cemeteries. (Less than Significant with Mitigation)

Section 15064.5 of the CEQA Guidelines assigns special importance to human remains, and specifies procedures to be used when Native American remains are discovered. These procedures are detailed under PRC Section 5097.98.

No previously recorded archeological sites likely to contain human remains have been identified within the project area. Furthermore, as described in this topic of the Initial Study, the sediments underlying SFO are of low to very low archeological sensitivity. Although it is possible to inadvertently expose unknown archeological resources during construction, it is unlikely, given low to very low archeological sensitivity of the vertical APE, that human remains are present and undiscovered within the project area.

Although unlikely, the inadvertent discovery of buried archeological resources—including those that contain human remains—cannot be completely eliminated. As such, ground-disturbing construction activities have the potential to inadvertently expose and therefore affect previously unknown archeological resources, including those that may contain human remains. The inadvertent exposure of previously unidentified human remains would be a significant impact. Implementation of **Mitigation Measure M-CP-1**, detailed on pages 624 and 632 above, as well as **Mitigation Measure M-CP-4, Inadvertent Discovery of Human Remains and Associated or Unassociated Funerary Objects** would reduce this impact to a less-than-significant level. With implementation of these mitigation measures, impacts relating to disturbance of human remains would be less than significant.

Mitigation Measure M-CP-4 – Inadvertent Discovery of Human Remains and Associated or Unassociated Funerary Objects including those Interred Outside of Formal Cemeteries

The treatment of human remains and of associated or unassociated funerary objects discovered during any ground-disturbing activity shall comply with applicable state laws. In the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, the following steps shall be taken:

- (1) The San Francisco Airport Commission will ensure that there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:
 - (A) The appropriate County Coroner must be contacted to determine that no investigation of the cause of death is required, and
 - (B) If the County Coroner determines the remains to be Native American:
 1. The County Coroner shall contact the Native American Heritage Commission within 24 hours;
 2. The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descended from the deceased Native American;
 3. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98, or
- (2) Where the following conditions occur, the San Francisco Airport Commission or its authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance:
 - (A) The Native American Heritage Commission is unable to identify a most likely descendent, or the most likely descendent failed to make a recommendation within 24 hours after being notified by the Commission;
 - (B) The identified descendant fails to make a recommendation; or

- (C) The San Francisco Airport Commission or its authorized representative rejects the recommendation of the descendant, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.

This shall include immediate notification of the appropriate County Coroner, and in the event of the County Coroner's determination that the human remains are Native American, notification of the California State Native American Heritage Commission, who shall appoint a Most Likely Descendant (MLD) (PRC Section 5097.98). The archeological consultant, project sponsor, and MLD shall make all reasonable efforts to develop an agreement for the treatment of, with appropriate dignity, human remains and associated or unassociated funerary objects (CEQA Guidelines Section 15064.5[d]). The agreement shall take into consideration the appropriate excavation, removal, recordation, analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects. California PRC allows 24 hours to reach agreement on these matters. If the MLD and the other parties do not agree on the reburial method, the project shall follow Section 5097.98(b) of the California PRC, which states, "the landowner or his or her authorized representative shall reinter the human remains and items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance."

Impact C-CP: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the vicinity, would result in less-than-significant cumulative impacts to cultural and paleontological resources. (Less than Significant)

The proposed project, combined with past, present and other future projects, would potentially cause a substantial adverse change in the significance of historical resources (built-environment historic and prehistoric archeological resources) and other archeological resources, as described in CEQA Guidelines Section 15064.5 and under California PRC (Section 21083.2). It is not known whether cumulative projects would also directly or indirectly destroy a unique paleontological resource or site and could disturb human remains, including those interred outside of formal cemeteries. Nonetheless, for the purpose of this environmental analysis, this Initial Study conservatively assumes that a significant cumulative impact to these resources could occur if proposed development described on Table 6 on pages 553 and 564 in Topic E-1, Land Use, were to require the demolition or substantial adverse change in the significance of a built-environment historic resource, or through the inadvertent discovery of any of the above-described resources during construction of proposed future projects, all of which involve ground-disturbing activities. This would be a cumulatively significant impact.

As described above, there are no historic architectural resources within the project site. All of the excavations associated with the proposed project are confined to the layer of imported material used to reclaim this portion of San Francisco Bay and the deposit of Young Bay Mud that underlies the imported fill, both of which are of low to

very low archeological sensitivity,²⁷ and neither of which typically contains vertebrate paleontological remains or unique geologic features. These excavations would not result in cumulatively considerable impacts. For similar reasons, it is unlikely that human remains are present and undiscovered within the project site. Nevertheless, inadvertent discovery of historic or other archeological resources, described above, or human remains, cannot be conclusively ruled out, and these impacts could result in a cumulatively considerable contribution to cumulatively significant impacts. Therefore, **Mitigation Measure M-CP-1** and **Mitigation Measure M-CP-4**, delineated above, would address this unlikely eventuality. They would reduce the proposed project's contribution to cumulative impacts related to archeological resources and human remains to a less-than-cumulatively-considerable level, and these cumulative impacts would be less than significant with mitigation.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
5. TRANSPORTATION AND CIRCULATION					
Would the project:					
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐	☐
b) Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels, obstructions to flight, or a change in location, that results in substantial safety risks?	☐	☐	☐	☒	☐
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses?	☐	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☐	☒	☐	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐	☐

The existing roadway network in the vicinity of the project area is served regionally by U.S. 101 and Interstate 380 (I-380), and locally by North Access Road, South Airport Boulevard, San Bruno Avenue,

²⁷ Supra note 20.

Millbrae Avenue, North McDonnell Road, South McDonnell Road, and Old Bayshore Highway, connecting the Airport to the neighboring cities of San Francisco, South San Francisco, San Bruno, Millbrae, and Burlingame.

The project does not conflict with the existing regional and local transit (rail, bus, and automated people-mover) facilities, which are located within the SFO area and provide service to the Airport. A summary of existing transit service serving the Airport is presented in Table 7. Regional rail service is provided by Bay

Table 7
Existing Transit Services Serving the San Francisco International Airport

Transit Provider and Route	Description	Weekday		Weekend/Holiday	
		Frequency	Service Span	Frequency	Service Span
BART					
Pittsburg/Bay Point to SFO/ Millbrae	Regional rail service connecting SFO to the North Bay, East Bay, San Francisco, and Peninsula.	15 to 30 minutes	4:00 a.m. to 1:30 a.m.	20 to 30 minutes	6:00 a.m. to 1:30 a.m. (Saturday), 8:00 a.m. to 1:30 a.m. (Sunday/ Holiday)
Caltrain					
San Francisco-San Jose/ Gilroy	Commuter rail service connecting SFO to San Francisco and San Jose (with extended peak-commuter weekday service to Gilroy)	30 to 60 minutes	5:20 a.m. to 12:30 a.m.	30 to 60 minutes	8:00 am to 12:30 a.m. (Saturday), 8:30 a.m. to 10 p.m. (Sunday/ Holiday)
SamTrans					
292	Connecting SFO to the San Francisco Transbay Terminal, San Mateo Caltrain Station, and Hillsdale Shopping Center	30 to 60 minutes	5:30 a.m. and 1:15 a.m.	30 to 60 minutes	5:30 a.m. and 12:30 a.m.
397	Late-night service connecting SFO to the San Francisco Transbay Terminal, the Millbrae Transit Center, and Redwood City Caltrain and the Palo Alto Caltrain stations	60 minutes	1:00 a.m. and 5:00 a.m.	60 minutes	1:00 a.m. to 6:30 a.m.
KX	Express route connecting SFO to the San Francisco Transbay Terminal and Palo Alto Caltrain Station	60 minutes	5:30 a.m. to 11:30 p.m.	60 minutes	6:30 a.m. to 10:30 p.m.

Sources:

San Francisco Bay Area Rapid Transit District (BART), *Plan a Trip, Home San Francisco International Airport Station*. Available Online at: <http://bart.gov/stations/sfia/schedule.aspx>. Accessed June 16, 2011.

Caltrain, *Schedules*. Available Online at: <http://www.caltrain.com/schedules>. Accessed June 16, 2011.

San Mateo County Transit District (SamTrans), *Schedules*. Available Online at: <http://www.samtrans.com/schedules.html>. Accessed June 16, 2011.

Area Rapid Transit (BART), a regional rail service with a station in the Airport's International Terminal (SFO Airport Station) that connects transit riders to the East Bay, San Francisco, and northern San Mateo County. The SFO Airport Station is accessible from any airport terminal via the AirTrain, a fully automated people-mover system operated by SFO that runs between the Airport terminals, terminal parking garages, Rental Car Center, and BART/SFO Airport Station. BART also provides a connection to Caltrain, a commuter rail service running along the San Francisco Peninsula from San Francisco to San Jose, at the Caltrain/BART Millbrae Station. Bus service to the Airport is operated by the San Mateo County Transit District (SamTrans), which runs a fixed-route bus service connecting the Airport to San Francisco, San Mateo County, and portions of Palo Alto.

Impact TR-1: The proposed project would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation. (Less than Significant)

Roadways

Impacts to roadways during operation of the SFO RSA Program would not occur because the proposed project would cause no increase in airport operations, or the number of passengers or aircraft operations at the Airport. Furthermore, the proposed project would not result in operational roadway impacts off airport property. Use of the vehicle service road adjacent to Runways 1L-19R and 1R-19L is restricted and is not accessible to the public, and minor changes in the alignment of the road would occur on airport property.

All construction activities, construction staging, and vehicle parking associated with the project would be on existing airport property and outside of the right-of-way of public roadways. Therefore, no travel-lane closures or roadway detours are anticipated.

During the construction period of 28 months—between 2012 and 2015—a minor temporary increase in roadway congestion could occur at various locations around the Airport as a result of construction-related vehicle traffic, and workers traveling to and from the project site. Where possible, construction would occur Monday through Friday between 7:00 a.m. and 6:00 p.m. Extensions to these hours would be necessary based on project construction phasing, schedule requirements, and the need to maintain existing airport operations. For example, operations would cease on Runways 1L-19R and 1R-19L for 4 to 5 months during the summer of 2014. During this period, 24-hour construction would occur to construct reconfigured taxiways and runways; install navigational aids and conduct associated testing and burn-in; and conduct an FAA flight check. Construction of reconfigured taxiways and runways for Runways 10L-28R and 10R-28L would occur during night time, from approximately 1:00 a.m. to 8:00 a.m. In addition, in 2012 through 2014, utility and electrical infrastructure would be relocated during night time (generally from 1:00 a.m. to 8:00 a.m.). The construction workforce is expected to average approximately 113 workers and reach a peak of 344 workers during the most intensive construction phase, which is anticipated in mid-2014. Truck trips are expected to average approximately 42 trips per day to a peak of 79 trips per day.

These construction trips would occur on the existing roadway network in the project vicinity, including U.S. 101, I-380, North Access Road, South Airport Boulevard, San Bruno Avenue, Millbrae Avenue, North McDonnell Road, South McDonnell Road, and Old Bayshore Highway. The addition of worker and construction vehicle trips to the roadway network serving the project site would neither be substantial relative to the existing traffic volumes, nor disrupt traffic flows on these roadways, because roadway network changes would not be required and the proposed project would be constructed within existing airport property. Annual average daily traffic in 2009 for freeways serving the project site and Airport Boulevard are presented in Table 8.

Table 8
Annual Average Daily Traffic (2009) on Freeways/Roadways Adjacent to San Francisco International Airport

Freeway/Roadway	Annual Average Daily Traffic	Peak Hour Traffic
U.S. 101 North of Millbrae Ave	243,000	16,900
U.S. 101 South of Millbrae Ave	226,000	15,700
I-380 South of U.S. 101 Junction	142,000	10,700
Airport Boulevard after U.S. 101 and I-380 Junction	9,000	680

Notes:

I-380 = Interstate 380

U.S. 101 = U.S. Highway 101

Source: Caltrans (California Department of Transportation), 2011. 2009 Annual Average Daily Traffic. Traffic Data Branch. <http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/2009all/2009TrafficVolumes.htm>. Accessed March 18, 2011 and May 26, 2011.

Although the project's construction traffic is expected to result in less-than-significant impacts, ~~implementation of the project sponsor has agreed to adopt~~ **Improvement Measure I-TR-1**, which would further reduce any less-than-significant transportation effects associated with construction activities, because it entails ~~by~~ developing and implementing a construction traffic control plan.

Improvement Measure I-TR-1: Traffic Control Plan (Construction Activities)

The Airport shall require contractor(s) to prepare and successfully implement a traffic control plan. The traffic control plan shall include appropriate project-specific measures, including measures to reduce potential impacts to traffic flows on roadways affected by project construction activities. These roadways are expected to include U.S. 101, I-380, North Access Road, South Airport Boulevard, San Bruno Avenue, Millbrae Avenue, North McDonnell Road, South McDonnell Road, and Old Bayshore Highway. The Airport and construction contractor(s) shall also coordinate with local jurisdictions, transit agencies, and the California Department of Transportation (Caltrans), as appropriate, for affected roadways and intersections. The traffic control plan shall include the following elements as appropriate:

- Flaggers and/or signage shall be used to guide vehicles through and/or around the construction zone. At all times, the contractor shall maintain access for emergency response vehicles.
- Truck routes designated by cities and counties shall be identified in the traffic control specifications. Haul routes that minimize truck traffic on local roadways and residential streets shall be used to the extent feasible. For project work that requires movement of oversized or excessive load vehicles on the State Highway System, the contractor shall be responsible for obtaining a Transportation Permit from Caltrans.
- Sufficient staging areas shall be provided for trucks accessing construction zones to minimize disruption to adjacent land uses.
- Along major arterials, truck trips shall be scheduled outside of the peak morning and evening, and event commute periods to the extent feasible.
- Construction shall be coordinated with local transit service providers, including temporary relocation of bus routes or bus stops in work zones, if necessary.
- Public information relating to affected roadways and intersections shall be provided as appropriate.
- Where it is feasible and safe to do, existing pedestrian and bicycle access and circulation shall be maintained. If access and circulation cannot be maintained, detours shall be designated and posted for pedestrians and bicyclists.
- All construction equipment and materials shall be stored in designated contractor staging areas on or adjacent to the worksite on airport property, in a manner that minimizes obstruction of traffic.
- Locations shall be identified for parking by construction workers, either within the construction zone, or if necessary, at a nearby location with transport provided between the parking location and the worksite.
- Public roadways shall be repaired or restored to their original conditions upon completion of construction.

- The traffic control plan shall conform to the California Manual on Uniform Traffic Control Devices: Part 6, Temporary Traffic Control.²⁸ Traffic plans may require Caltrans, county, and city review and/or approval.

Public Transit

The project vicinity is well-served by existing regional and local transit services operated by BART, Caltrain, and SamTrans that directly or indirectly serve the SFO International Terminal; and by AirTrain, a fully automated people-moving system operated by SFO that connects to the Airport terminals, terminal parking garages, Rental Car Center, and BART/SFO International Airport Station.²⁹ Thus, existing transit services would provide sufficient capacity to accommodate any construction workers using transit.

The effect of project construction and operation on public transit would be minimal because the project involves the construction of RSA enhancements on the existing airfield and airport property, away from the Airport terminal where there are transit connections. The minor increase in construction-related vehicles along shared roadways with SamTrans bus routes could potentially slow bus movements. However, this temporary impact on roadway traffic volumes and SamTrans bus service would have a less-than-significant impact on the overall public transit network serving the Airport, because construction would be temporary and would occur on airport property. Although the project's construction traffic is expected to result in less-than-significant impacts, ~~the project sponsor has agreed to adopt~~ **Improvement Measure I-TR-1**, presented above, ~~which~~ would further reduce any nonsignificant effects on SamTrans bus services associated with construction activities, because it entails ~~by developing and implementing a construction traffic control plan.~~

Bicycle and Pedestrian Facilities

The proposed project is limited to the construction of RSA improvements on the existing airfield and airport property, and not within the right-of-way of existing bicycle and pedestrian facilities (including crosswalks at key intersections and the existing San Francisco Bay Trail alignments). Within the Airport, bicycles are prohibited from operating on the main inbound and outbound airport roadways, on the AirTrain, and inside terminal buildings and garages. Bicycles are permitted to traverse through the main airport roads, and there are five designated bicycle parking areas on the Airport. Pedestrian and bicycle-related facilities are located on or adjacent to local roadways that may be shared with construction-related vehicles and workers; however, construction and operation of the proposed project would not obstruct or require the detour or relocation of such facilities. For these reasons, the proposed project would have less-than-significant impacts on access to pedestrian and bicycle facilities. Although the project's construction traffic is expected to result in less-than-significant impacts, **Improvement Measure I-TR-1** ~~the project sponsor has agreed to adopt an improvement~~

²⁸ Caltrans (California Department of Transportation), 2010. California Manual on Uniform Traffic Control Devices. Part 6, Temporary Traffic Control. <http://www.dot.ca.gov/hq/traffops/signtech/mutedsupp/pdf/camuted2010/Part6.pdf>.

²⁹ AirTrain, 2011. SFO International Airport, AirTrain Frequently Asked Questions, Website. <http://flysfo.com/web/page/atsfo/airtrain/faq>. Accessed February 1, 2011.

~~measure that~~ would further reduce any potential effects to bicycle and pedestrian movements along existing facilities associated with construction activities. **Improvement Measure I-TR-1** is presented on pages 710 through 732 above.

Parking

San Francisco does not consider parking supply as part of the permanent physical environment, and therefore does not consider changes in parking conditions to be environmental impacts. Parking deficits are considered to be a social effect rather than impacts on the permanent physical environment; therefore, changes in parking conditions are not considered environmental impacts as defined by CEQA. However, a deficiency in parking has a potential to trigger secondary environmental impacts that could result in significant environmental impacts.

Parking related to project construction would not displace existing public or airport worker parking, because construction worker parking would be accommodated on the project site. The SFO RSA Program would not increase parking demand at the Airport, because the RSA enhancements would cause no increase in airport operations, or the number of passengers or aircraft operations at the Airport. For these reasons, the project would have no impact on parking.

Impact TR-2: The proposed project would not conflict with any County or Metropolitan Transportation Commission congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways. (Less than Significant)

The project would cause no increase in airport operations, or the number of passengers or aircraft operations at the Airport. Furthermore, as discussed above, construction impacts are limited to the construction period of the proposed project (28 months); would be restricted to the construction of RSA improvements on existing airport property; and would not occur in the right-of-way of any public roadways. Therefore, temporary and intermittent project construction effects on traffic volumes would result in less-than-significant impacts to roads and highways in the project vicinity. These roadways are expected to include U.S. 101, I-380, North Access Road, South Airport Boulevard, San Bruno Avenue, Millbrae Avenue, North McDonnell Road, South McDonnell Road, and Old Bayshore Highway. Although the project's construction traffic would result in less-than-significant impacts, ~~the project sponsor has agreed to adopt an improvement measure that~~ **Improvement Measure I-TR-1** would further reduce any transportation effects associated with construction activities, ~~because it entails~~ by developing and implementing a construction traffic control plan.

Improvement Measure I-TR-1 is presented on pages 710 through 732 above. For all of these reasons, the project would not conflict with any County or Metropolitan Transportation Commission (MTC) congestion management projects, level of service standards, travel demand measure, or other standards, and impacts would be less than significant to the County or MTC congestion management program.

Impact TR-3: The proposed project would not result in a change in air traffic patterns, including either an increase in traffic levels, obstructions to flight, or a change in location that could result in substantial safety risks. (No Impact)

The proposed project would involve constructing improvements to existing RSAs at SFO to enhance safety. It would not result in a change in air traffic patterns, induce air traffic activity, and would cause no increase in airport operations, or the number of passengers or aircraft operations at the Airport during construction or operations. The use of runways would change as a result of temporary runway closures during construction, but air traffic patterns would not change during construction or operation. In addition, the FAA would prepare a Safety Management System for construction and operation of the proposed project.³⁰ Therefore, the proposed project would have no impact on air traffic patterns that could result in substantial safety risks.

Impact TR-4: The proposed project would not result in substantially increased hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses. (No Impact)

Construction and implementation of the proposed project would not change existing design features of roads and highways in the project vicinity. Project construction and implementation would occur entirely on airport property. Moreover, the purpose of the project is to improve runway safety. Therefore, the project would have no impact on design features or incompatible uses that would increase the potential for traffic safety hazards. Although the project's construction traffic is expected to result in less-than-significant impacts, ~~the project sponsor has agreed to adopt~~ **Improvement Measure I-TR-1**, which is presented above, on pages 710 through 732, ~~and would further reduce any less-than-significant hazards associated with construction activities, because it entails~~ by developing and implementing a construction traffic control plan.

Impact TR-5: The proposed project would not result in inadequate emergency access. (Less than Significant)

As discussed above, construction-related traffic would be restricted to the construction of the RSA improvements. Such traffic-associated proposed project activities would be minimal and would not pose an obstacle to emergency response vehicles. Any temporary impacts on traffic volumes related to construction activities would be less than significant. Although the project's construction traffic is expected to result in less-than-significant impacts, ~~the project sponsor has agreed to adopt~~ **Improvement Measure I-TR-1**, which would further reduce any less-than-significant transportation effects associated with construction activities, ~~because it entails~~ by developing and implementing a traffic control plan.

³⁰ FAA, FAA Order 5200.11, *FAA Airports (ARP) Safety Management System (SMS)*, Issued August 30, 2010, Effective May 31, 2011, Change 1. Available online at: http://www.faa.gov/regulations_policies/orders_notices/index.cfm/go/document/information/documentID/323070.

Impact TR-6: The proposed project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such features. (Less than Significant)

As described previously within this topic of the Initial Study, temporary effects of construction activities would result in less-than-significant impacts on the transportation network. Implementation of the proposed project would not permanently change the existing or planned transportation network or result in long-term increases in transit demand in the project vicinity. The project would not conflict with adopted policies/objectives, plans (including transportation elements of general plans of the CCSF, the County of San Mateo, and the cities of Millbrae, San Mateo, San Bruno, Burlingame, and South San Francisco), or programs related to public transit, pedestrian, or bicycle facilities; therefore, less-than-significant impacts would occur.

Although the project's construction traffic is expected to result in less-than-significant impacts, ~~the project sponsor has agreed to implement~~ **Improvement Measure I-TR-1**, presented above, ~~which would further reduce any effects on the transportation network associated with construction activities, because it entails by~~ developing and implementing a traffic control plan.

Impact C-TR: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the vicinity, would result in less-than-significant cumulative impacts to transportation. (Less than Significant)

The appropriate spatial boundary for analysis of cumulative transportation impacts includes the present and future on-airport projects listed in Table 6 on pages 553 and 564, because the proposed project would only affect on-airport transportation during construction. These projects are scattered throughout the Airport. Construction-related traffic on local roads would be managed through Traffic Control Plans routinely implemented by the Airport. The Traffic Control Plans protect public transit, bicycle and pedestrian facilities, parking, and emergency access, resulting in less-than-significant cumulative construction traffic impacts.

The proposed project's contribution to area traffic would be limited to a minor increase in vehicular traffic to the project vicinity roadways during the construction period that would be managed through **Improvement Measure I-TR-1**, presented above. This increase would be a temporary condition. As described above, these temporary construction-related vehicles on local roadways would not represent a substantial increase in traffic volumes on local roads, and effects on public transit, bicycle and pedestrian facilities, parking facilities, or emergency access would be minimal. Because the proposed project would cause no increase in airport operations, or the number of passengers or aircraft operations at the Airport, the project would not result in increased vehicle traffic after construction is completed. The proposed project would have no impact relating to conflict with any congestion management plan, a change in air traffic patterns resulting in a safety risk, or increased hazards due to a design feature or incompatible uses. Hence, the proposed project would have less-than-significant cumulative transportation impacts.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
6. NOISE					
Would the project:					
a) Result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐	☐
b) Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐	☐
c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐	☐
d) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐	☐
e) For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	☐	☐	☒	☐	☐
f) For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☐	☒
g) Be substantially affected by existing noise levels?	☐	☐	☐	☐	☒

SFO is a public airport, and there is no private airstrip located in the vicinity of the proposed project; therefore, criterion 6f is not applicable. The proposed improvements to RSAs would cause no increase in airport operations, or the number of passengers or aircraft operations at the Airport. In addition, the project would not include the development of noise-sensitive facilities that would be affected by existing noise levels; therefore, criterion 6g is not applicable.

Background

The existing noise environment in the area surrounding SFO is influenced by aircraft operations and associated airport operational activities, industrial activities, and major transportation infrastructure, including U.S. 101.

Construction activities associated with the proposed project that have the potential to result in changes to the existing noise environment would include grading, scraping, compacting soil, and other activities associated with a project of this type. In addition, a vibratory hammer would be used during relocation of the Airport's sea wall, and an impact hammer would be used during the installation of new piles for the Runway 19L, Runway 28L, and Runway 28R approach lighting systems on existing trestles in San Francisco Bay.

The fleet mix, number of aircraft operations, and aircraft flight tracks at the Airport would not change as a result of operation of the proposed project. Under the proposed project, the runway ends would be shifted to enhance the safety of the RSA. This may change the departure and arrival points on each runway and have the potential to result in changes to the existing noise environment.

Impact NO-1: The proposed project would not result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. (Less than Significant)

As part of a concurrent Environmental Assessment prepared for the SFO RSA Program under the federal National Environmental Policy Act (NEPA), potential noise effects were analyzed based on guidance contained in FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, Change 1, Appendix A, Section 14, Paragraph 14.2b.³¹ This guidance requires detailed noise analyses to be performed using the latest version of the FAA's noise model, the Integrated Noise Model (INM) (INM Version 7.0b).

Using INM, noise contours were prepared for analysis under CEQA reflecting proposed project conditions as well as under the "no project" conditions for the years 2010, 2015, and 2020. Although the project was not implemented in 2010, the year was selected as a baseline year to identify existing conditions and potential impacts of the project because it is the most recent year for which the number of aircraft operations at the Airport is available. Two future years, 2015 and 2020, were also selected for analysis of potential impacts of the proposed project. The first year that all of the proposed SFO RSA Program improvements would be constructed and in use would be 2015, and 2020 would be the 5-year future horizon normally used for noise effects analysis in airport environmental documents.

Noise contours are graphical representations of the distribution of aircraft-generated noise, connecting points of equal noise exposure. The noise contours produced for 2010, 2015, and 2020 conditions represent an average annual day of aircraft operations at the Airport. The 2010 contours are based on the number of aircraft operations at the Airport in 2010, and the associated airport operational characteristics. FAA-approved forecasted operations for 2015 and 2020 were used to analyze the future noise environment for SFO. A detailed description of the aircraft operations and airport operational characteristics data used in preparation of the noise contours is provided in Appendix A of the Noise Technical Memorandum prepared for the SFO RSA Program.³²

The proposed project would enhance aviation safety at SFO and would cause no increase in airport operations, or the number of passengers or aircraft operations at the Airport; an increase in the size of aircraft

³¹ FAA, FAA Order 1050.1E, *Policies and Procedures for Considering Environmental Impacts*, Issued June 8, 2004, Effective March 20, 2006. Available online at: http://www.faa.gov/regulations_policies/orders_notices/index.cfm/go/document.current/documentNumber/1050.1.

³² URS Corporation (URS), *Technical Memorandum, Noise, San Francisco International Airport Runway Safety Area Program*, June 2011. This document is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

using SFO; nor any changes to airspace characteristics, flight paths, or their use. Therefore, assumptions associated with the operational characteristics of the Airport remain the same as those defined for no project conditions, except that the location of the takeoff point and landing point on each runway would change with project implementation because of the use of declared distances and shifting of the runway ends to enhance RSAs.

A significant impact from aircraft noise would occur if implementation of the proposed project would result in one or more of the following conditions:

- Noise-sensitive land uses would be newly exposed to noise levels of Community Noise Equivalent Level (CNEL) 65 A-weighted decibels (dBA) or higher under proposed project conditions when compared to no project conditions for the same time periods (2010, 2015, or 2020).
- Noise-sensitive uses would experience a CNEL 1.5 dBA or higher increase in noise within areas exposed to CNEL 65 dBA or higher under proposed project conditions when compared to no project conditions for the same time periods (2010, 2015, or 2020).

For aviation noise analysis, the FAA has determined that the cumulative noise energy exposure of individuals to noise resulting from aviation activities must be established in terms of yearly day/night average sound level as FAA's primary metric. The FAA recognizes CNEL (community noise equivalent level) as an alternative metric for California. CNEL is a 24-hour time-weighted average noise metric, expressed in dBA, that accounts for the noise levels of individual aircraft events, the number of times those events occur, and the time of day they occur. CNEL is measured for three time periods: daytime (7:00 a.m. to 6:59 p.m.), evening (7:00 p.m. to 9:59 p.m.), and nighttime (10:00 p.m. to 6:59 a.m.). To represent the added intrusiveness of sounds during evening and nighttime hours, CNEL adds weights of 4.77 dBA and 10 dBA to events occurring during the evening and nighttime periods, respectively.³³

The first significance threshold is derived from the California Airport Noise Standards (Title 21) (California Code of Regulations [CCR], Title 21, Section 5000 et seq.)³⁴, which applies to ten airports in California, including SFO.

The second significance threshold is derived from FAA Order 1050.1E, Change 1, Appendix A, Section 14.3³⁵, which presents noise impact significance thresholds for airport projects subject to NEPA. Because environmental analyses of the proposed project are also being undertaken to satisfy requirements

³³ California Department of Transportation (Caltrans), *California Airport Land Use Planning Handbook*, Department of Transportation, Division of Aeronautics, Issued January 2002. Available online at: <http://www.dot.ca.gov/hq/planning/aeronaut/documents/ALUPHComplete-7-02rev.pdf>.

³⁴ *California Airport Noise Standards, California Code of Regulations, Title 21, Section 5000 et seq.* Available online at: <http://www.dot.ca.gov/hq/planning/aeronaut/documents/statenoisestnds.pdf>.

³⁵ Supra note 31.

under NEPA, this significance threshold has also been included in this Initial Study. FAA Order 1050.1E, Change 1 also states, in accordance with recommendations made by the 1992 Federal Interagency Committee on Noise, that if a CNEL 1.5 dBA increase in noise is identified in areas exposed to noise levels of CNEL 65 dBA or higher under proposed project conditions when compared to no project conditions, further analysis should be conducted to identify areas within the CNEL 60 to 65 dBA contour that would experience an increase in noise of CNEL 3 dBA or higher due to a proposed project. The results of such an analysis are often provided in FAA environmental documents for public disclosure purposes only, but they do not represent a threshold for determining the significance of impacts.

The noise analysis conducted for the proposed project indicates that all areas with a 3-dBA change in noise exposure are within the 65 CNEL contour and include only airport property and the adjacent U.S. 101 right-of-way.

The Airport has implemented an FAA-approved RSIP, which has noise insulated more than 15,000 noise-sensitive structures in areas surrounding the Airport. For purposes of determining potential noise impacts, dwelling units and other units that have been insulated under FAA-approved RSIPs, or properties whose owners have been invited but have declined to participate in these programs, would not be considered significantly impacted pursuant to ~~California Code of Regulations~~, Title 21, Section 5014(a)(4),³⁶ when exposed to noise levels that exceed the thresholds described above.

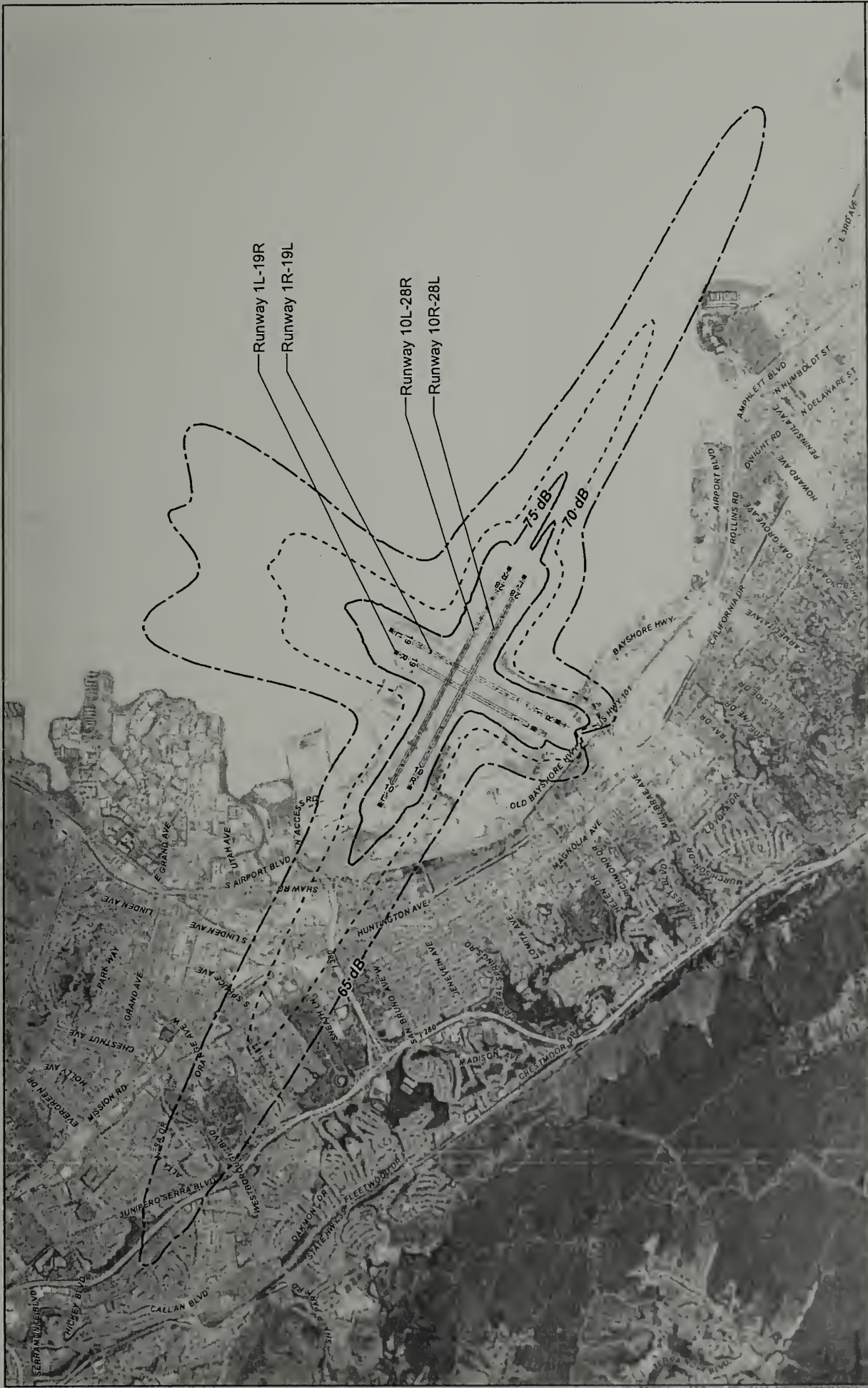
An analysis of potential noise impacts from aircraft noise associated with implementation of the proposed project is presented below in terms of the two significance thresholds.

Analysis of Noise-Sensitive Land Uses and Population Newly Exposed to CNEL 65 dBA under the Proposed Project

Noise-sensitive land uses were identified that would be newly exposed to noise levels of CNEL 65 dBA or higher under proposed project conditions when compared to no project conditions for the same time periods (2010, 2015, or 2020). These areas were identified by overlaying the noise contours developed for both proposed project and no project conditions for each analysis year³⁷ on geographic information system maps depicting existing land use and parcel data (see Figures 15 through 20, on pages 81 through 91). Table 9 on page 939 presents the total additional acreage (over land and off-airport), the total acreage of residential land use, the total estimated number of residents, and the total number of additional residential parcels exposed to CNEL 65 dBA and higher under both proposed project and no project conditions for 2010, 2015, and 2020. In this case, potential noise-sensitive land uses that would be newly exposed to noise levels of CNEL 65 dBA or higher under proposed project conditions would be limited to residential uses.

³⁶ *California Code of Regulations, Title 21, Section 5014(a)(4)*. Available online at: <http://www.dot.ca.gov/hq/planning/aeronaut/documents/statenoisestnds.pdf>.

³⁷ Supra note 32.



NO PROJECT NOISE CONTOURS (2010)

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

FIGURE 15

LEGEND

- 65 dB CNEL
- - - 70 dB CNEL
- 75 dB CNEL

Source: Aerial Photo, NAIP, 2009

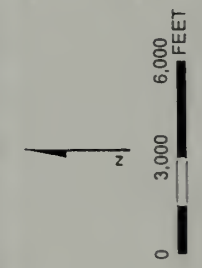
Acronyms and Abbreviations:
CNEL = Community Noise Equivalent Level
dB = decibel



NO PROJECT NOISE CONTOURS (2015)

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

FIGURE 17



- LEGEND**
- 65 dB CNEL
 - 70 dB CNEL
 - 75 dB CNEL

Acronyms and Abbreviations:
CNEL = Community Noise Equivalent Level
dB = decibel

Source:
Aerial Photo, N.A.P. 2009



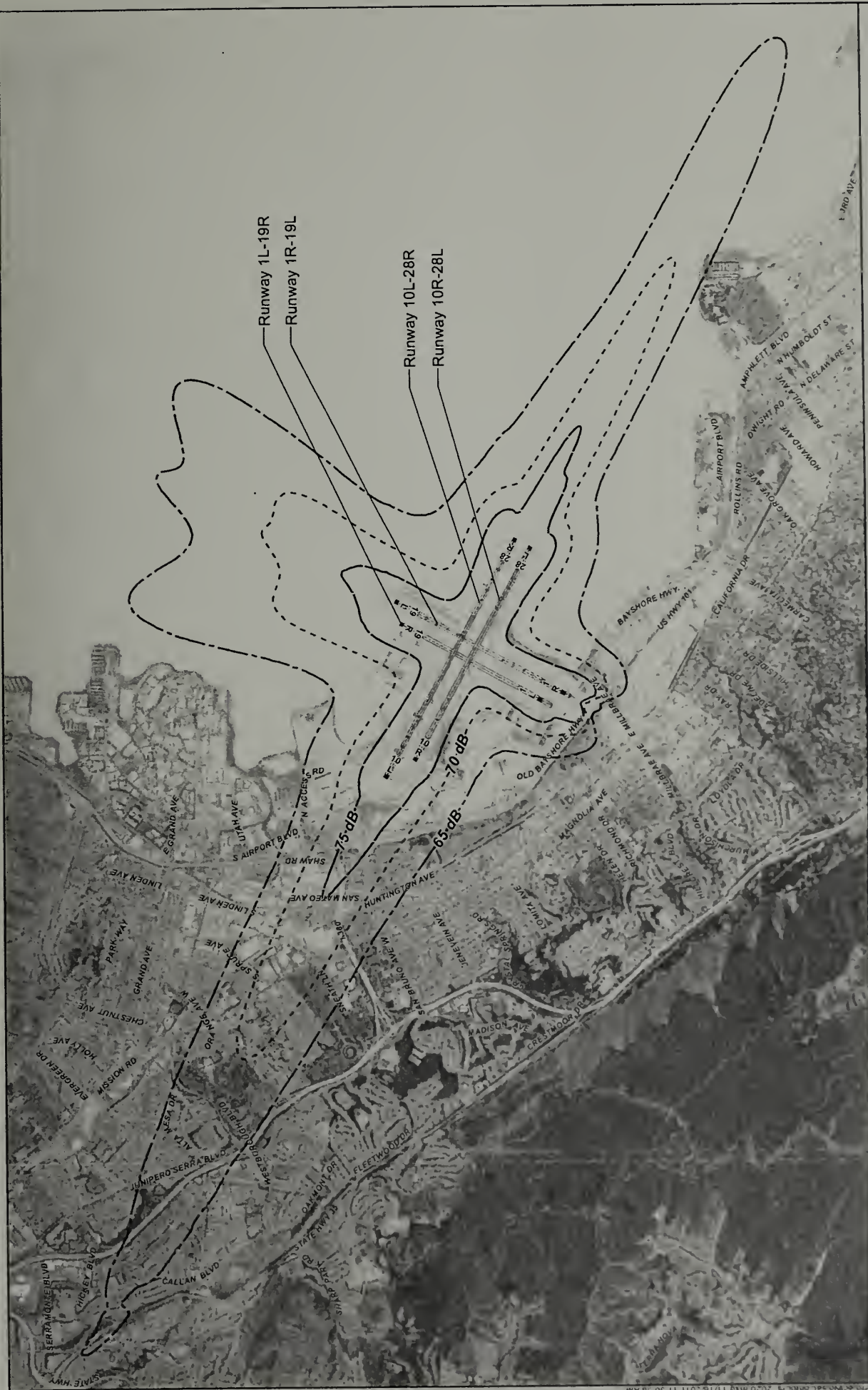
PROPOSED PROJECT NOISE CONTOURS (2015)

Acronyms and Abbreviations:
CNEL = Community Noise Equivalent Level
dB = decibel



FIGURE 18

Case No. 2010.0755E – November 2011



NO PROJECT NOISE CONTOURS (2020)

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

FIGURE 19

LEGEND

- 65 dB CNEq
- 70 dB CNEq
- 75 dB CNEq

Source:
Aerial Photo, NAIP 2009

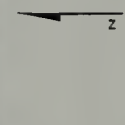
Acronyms and Abbreviations:
CNEq = Community Noise Equivalent Level
dB = decibel



PROPOSED PROJECT NOISE CONTOURS (2020)

San Francisco International Airport
 Runway Safety Area Program IS
 San Francisco, California

FIGURE 20



LEGEND

- 65 dB CNEL
- 70 dB CNEL
- 75 dB CNEL

Source
 Aerial Photo, FAIP 2009

Acronyms and Abbreviations:
 CNEL = Community Noise Equivalent Level
 dB = decibel

Table 9
Noise Exposure Within CNEL 65 dBA Contour
Proposed Project and No Project (2010, 2015, and 2020)

	Total Acreage^{1,2}	Total Acreage Residential Use²	Estimated Total Residential Parcels	Estimated Total Number of Residents
2010				
No Project – CNEL 65 dBA and higher	3,321.8	491.2	5,667	16,366
Proposed Project – CNEL 65 dBA and higher	3,328.3	495.5	5,698	16,461
Increase	6.5	4.3	31	95
2015				
No Project – CNEL 65 dBA and higher	3,873.6	624.7	7,323	21,892
Proposed Project – CNEL 65 dBA and higher	3,886.5	630.5	7,373	22,044
Increase	12.9	5.8	50	152
2020				
No Project – CNEL 65 dBA and higher	4,123.1	722.0	8,903	27,059
Proposed Project – CNEL 65 dBA and higher	4,136.5	727.9	8,958	27,288
Increase	13.4	5.8	55	169

Notes:

1. Excluding water and Airport land east of U.S. Highway 101.
2. May not add due to rounding.
3. Analysis based on best available data. Census data for 2010 were not available at the block level during preparation of this Initial Study.

CNEL= Community Noise Equivalent Level

dBA = A-weighted decibel

Sources:

Adaptation of data obtained from the U.S. Census Bureau's Census 2000 (2003 Update), and parcel data obtained from the San Mateo County Assessor

Residential areas exposed to CNEL 65 dBA and higher under proposed project conditions for 2010, 2015, and 2020 would remain almost unchanged compared to the no project conditions for the same time period. The 2010, 2015, and 2020 CNEL contours for the proposed project show a minor landward shift to the southwest in a small area localized within a radius of approximately 2,000 feet southwest of Runways 1L and 1R (see Figures 15 through 20 on the following pages 81 through 91). This small change in the shape of the CNEL noise contours associated with implementation of the project is a result of the proposed shift of the thresholds of Runways 1L and 1R by 450 feet and 205 feet, respectively, to the southwest. As indicated in Table 9, a total of approximately 4.3 to 5.8 acres of residential land uses (31 to 55 residential parcels) with a residential population estimated to be approximately 95 to 169 individuals would be located within areas newly exposed to CNEL 65 dBA between 2010 and 2020 as a result of implementation of the project. These data indicate that the potential impact of the proposed runway shift would be similar for all three time periods.

The residential noise-sensitive area that would be located within areas newly exposed to CNEL 65 dBA between 2010 and 2020 as a result of implementation of the project is located within the City of Millbrae. The City of Millbrae has completed its RSIP program; all residential units within the city adversely affected by airport noise have been noise insulated, or the property owners have declined to participate in the program. Noise-sensitive uses that have received, or have been offered, noise insulation as part of a FAA-approved noise insulation program are not considered to be noise-sensitive land uses for the purposes of determining noise impacts.³⁸

Other land uses that would be newly exposed to noise levels of CNEL 65 dBA and higher include industrial, roadways, and park/open space uses. The industrial and roadway uses would be compatible with these noise levels. Noise levels at Bay Front Park south of the Airport would not be affected by the proposed project. Bayside Park and the undeveloped area just west of U.S. 101 are already exposed to noise levels of CNEL 65 dBA and higher or are owned by the Airport. Therefore, the increase in area newly exposed to noise levels of CNEL 65 dBA would not constitute a significant impact (see Topic E.10, Recreation, of this Initial Study).

Therefore, noise impacts in areas newly exposed to noise levels of CNEL 65 dBA would be less than significant.

Areas of CNEL 1.5 dBA Increase within Areas Exposed to CNEL 65 dBA and Higher

FAA Order 1050.1E establishes that significant impacts would occur if analysis shows that the proposed project would cause noise-sensitive land uses to experience a change of CNEL 1.5 dBA or more in areas exposed to CNEL 65 dBA or higher under the proposed project conditions when compared to the no project condition for the same time period. As shown on Figures 21 through 23 on pages 953 through 997, the noise analysis indicates that those areas that would be exposed to an increase in noise under the proposed project condition of CNEL 1.5 dBA and higher within the CNEL 65 dBA would all be located south of the approach

³⁸ Supra note 34.



Acronyms and Abbreviations:
 CNEL = Community Noise Equivalent Level
 dB = decibel

LEGEND
 --- 65 dB CNEL - No Project
 --- 65 dB CNEL - Proposed Project

- Single Family Residential within the +1.5 dB Difference Area and CNEL +65 dB Contour
- Single-Family Residential
- Multi-Family Residential
- Commercial
- Industrial

- Public Use
- Vacant
- Park/Open Space
- Undetermined



RESIDENTIAL LAND USE WITHIN THE AREA OF CNEL 1.5+ dB CHANGE FOR YEAR 2010

San Francisco International Airport
 Runway Safety Area Program IS
 San Francisco, California

0 250 500
 FEET

Source:
 Aerial Photo, SFO, June 2009; Existing Land Use, City/County Association of Governments- San Mateo County, 2011; Parks, USGS Geographic Names Information System/San Mateo County Parcels, 2011; San Mateo County Active Parcels, APN, May 2010

FIGURE 21



Acronyms and Abbreviations
 CNEL = Community Noise Equivalent Level
 dB = decibel

LEGEND

- 65 dB CNEL - No Project
- - - 65 dB CNEL - Proposed Project
- ▲ Map Location
- Single Family Residential within the +1.5 dB Difference Area and CNEL +65 dB Contour
- Single-Family Residential
- Multi-Family Residential
- Commercial
- Industrial
- Public Use
- Vacant
- Park/Open Space
- Undetermined

RESIDENTIAL LAND USE WITHIN THE AREA OF CNEL 1.5+ dB CHANGE FOR YEAR 2015

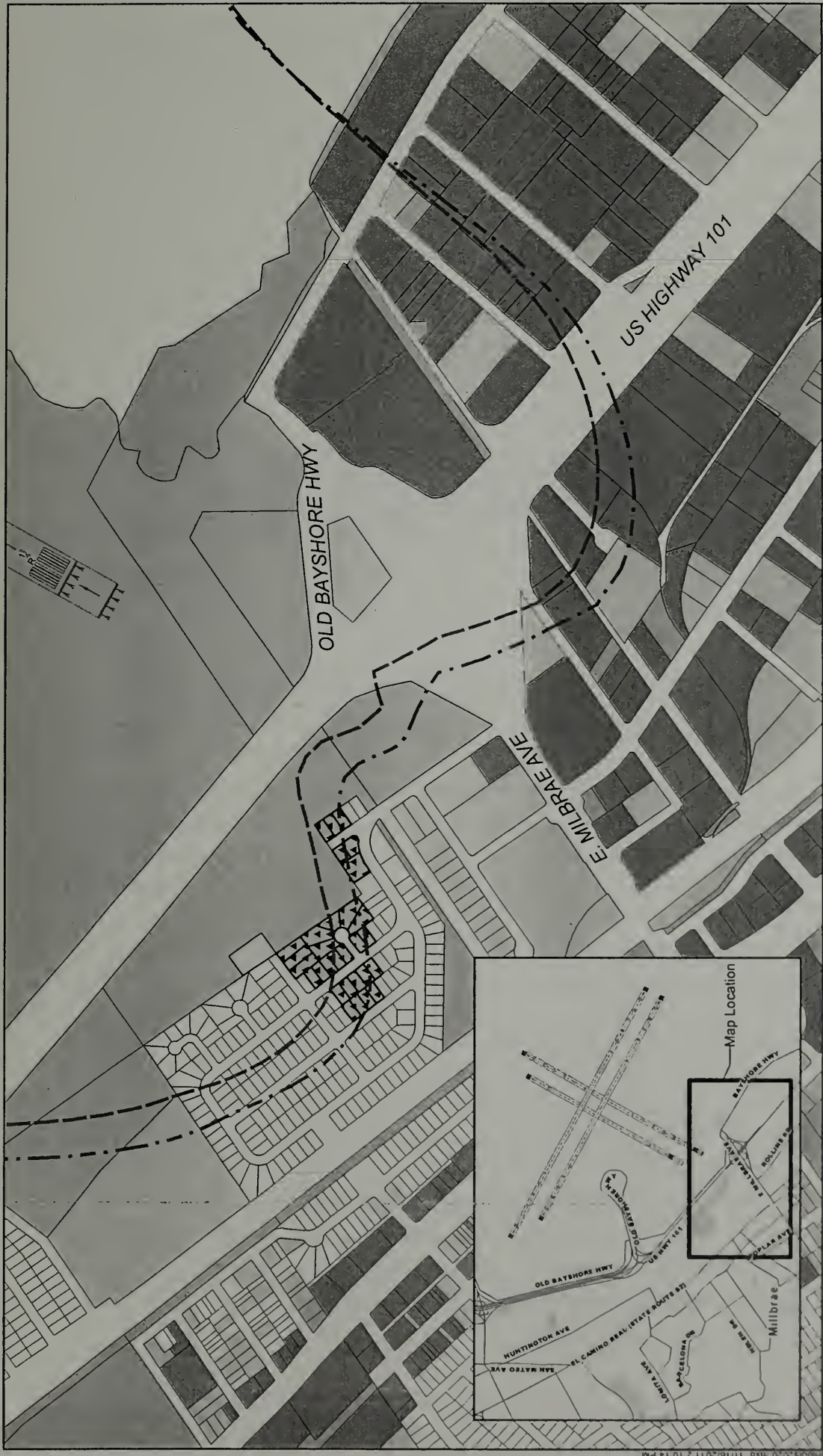
San Francisco International Airport
 Runway Safety Area Program IS
 San Francisco, California

Source

Aerial Photo, SFO, June 2009; Existing Land Use, City/County Association of Governments - San Mateo County, 2011; Parks, USGS Geographic Names Information System/San Mateo County Parcels, 2011; San Mateo County Active Parcels, APN, May 2010

0 250 500 FEET

FIGURE 22



Acronyms and Abbreviations.
 CNEL = Community Noise Equivalent Level
 dB = decibel

LEGEND

- 65 dB CNEL - No Project
- - - 65 dB CNEL - Proposed Project

- Single Family Residential within the +1.5 dB Difference Area and CNEL +65 dB Contour
- Single-Family Residential
- Multi-Family Residential
- Commercial
- Industrial

Public Use

Vacant

Park/Open Space

Undetermined

0 250 500 FEET

N

RESIDENTIAL LAND USE WITHIN THE AREA OF CNEL 1.5+ DB CHANGE FOR YEAR 2020

San Francisco International Airport
 Runway Safety Area Program IS
 San Francisco, California

FIGURE 23

Source: Aerial Photo, SFO, June 2009; Existing Land Use, City/County Association of Governments - San Mateo County, 2011; Parks, USGS Geographic Names Information System/San Mateo County Parcels, 2011; San Mateo County Active Parcels, APN, May 2010

ends of Runways 1L and 1R. No areas outside of the CNEL 65 dBA contour under the proposed project condition would experience 3 dBA increases in noise levels. As presented in Table 10, approximately 11.6 acres of off-Airport land would be exposed to a change of CNEL 1.5 dBA or higher in 2010, including approximately 10.3 acres of industrial, transportation, and open space land uses, and 1.3 acres of single-family residential land uses. The total acreage would be reduced under 2015 and 2020 conditions to 8.9 and 8.7 acres, respectively; however approximately 1.8 acres of single-family residential land uses would be exposed to a change of CNEL 1.5 dBA or higher in 2015 and 2020.

Table 10
Noise Exposure Change of 1.5 dBA within CNEL 65 dBA Contour
Proposed Project (2010, 2015, and 2020)

Year	Total Acreage ¹	Total Acreage Other Uses ²	Total Acreage Residential Use	Total Residential Parcels	Estimated Total Number of Residents
2010	11.6	10.3	1.3	15	46
2015	8.9	7.1	1.8	30	90
2020	8.7	6.9	1.8	30	90

Notes:

1. Excluding Water and Airport land east of U.S. Highway 101

2. Industrial, Transportation, and Open Space land uses

CNEL = Community Noise Equivalent Level

dBA = A-weighted decibel

The industrial and transportation uses exposed to a change of CNEL 1.5 dBA or higher would be compatible with the noise environment. The area designated for park/open space use is already exposed to noise levels of CNEL 65 dBA and higher; therefore, the increase in area exposed would not constitute a significant impact (see Topic E.10, Recreation, of this Initial Study).

Under California Airport Noise Standards (Title 21) (CCRC Code of Regulations, Title 21, Section 5000 et seq.),³⁹ residential uses located within the CNEL 65 dBA and higher that have either been noise insulated or whose owner refused an offer for noise insulation, are deemed to be compatible land uses. A total of 15 single-family residential parcels would be affected under 2010 conditions and 30 single-family residential parcels would be affected under 2015 and 2020 conditions. All but two of these homes have already been insulated under the Airport's RSIP. For the purposes of determining potential noise impacts, residential properties that have been noise insulated are considered mitigated to less-than-significant impact levels. Owners of the remaining two homes were previously offered insulation but declined participation. These two residential properties whose owners have declined participation in the RSIP are considered compatible land uses under California's Airport Noise Standards, and hence are considered to have a less-than-significant impact from aircraft noise. Although the proposed project would result in less-than-significant noise impacts, implementation of the project sponsor has agreed to adopt Improvement Measure I-NO-1, which involves

³⁹ Supra note 34.

offerings noise insulation for residences that would experience a 1.5 dBA or higher change within the CNEL 65 dBA contour or higher and whose owners had previously declined insulation.

Improvement Measure I-NO-1 – Provide Noise Insulation in Accordance with an FAA-Approved Noise Insulation Program

The project sponsor shall offer to provide noise insulation to noninsulated homes affected by a change of CNEL 1.5 dBA or higher in areas exposed to CNEL 65 dBA or higher as a result of the proposed project. This insulation shall be provided in accordance with an FAA-approved noise insulation program.

Impact NO-2: The proposed project would not result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. (Less than Significant)

The proposed project would improve RSAs of existing runways at the Airport and would be unlikely to result in an increase in groundborne noise or vibration. Any potential for temporary increase in groundborne noise or vibration would result from project construction. Construction activities associated with the proposed project would include grading, scraping, compacting soil, and other activities associated with a project of this type. These activities would occur adjacent to runways at the Airport and other areas already exposed to high levels of noise. Groundborne noise is generally the result of underground construction activity, such as tunneling. The proposed project does not include these types of activities and it is unlikely that groundborne noise would result.

Similarly, the type of equipment that would be used during project construction would be unlikely to result in excessive groundborne vibration. Pile driving for relocation of the Airport's sea wall and installation of new piles for the Runway 28L and Runway 28R approach lighting systems would be the construction activities most likely to result in the potential for groundborne vibration. A vibratory hammer would be used for ~~these activities, because it would cause less groundborne vibration than an impact hammer~~ relocation of the Airport's sea wall, and an impact hammer would be used for the installation of new piles for approach lighting systems. The nearest residential area would be separated from activities that may result in groundborne vibration by a distance of approximately 1,000 feet, portions of the airfield, and U.S. 101, and would be unlikely to be affected by this activity. In addition, the construction period for the proposed project would be temporary in nature and airborne noise and vibration impacts would be less than significant.

Impact NO-3: The proposed project would not result in a substantial temporary or permanent increase in ambient noise levels in the project vicinity above levels existing without the project. (Less than Significant)

The proposed project would improve RSAs of existing runways at the Airport and would be unlikely to result in a substantial permanent increase in ambient noise levels in the project vicinity as discussed above in

Impact NO-1. Furthermore, it is unlikely that project construction activities would temporarily increase ambient noise levels in the immediate vicinity of the proposed project. Grading and scraping operations would be the noisiest construction activities associated with the SFO RSA Program. The loudest equipment expected to be used during project construction include a motor grader and a scraper. At a distance of 50 feet from the source, typical noise levels produced by graders and scrapers are 85 dBA and 89 dBA, respectively.⁴⁰ The nearest noise-sensitive receptors to the proposed project are located approximately 750 feet away. Based on calculations using the Federal Highway Administration's Roadway Construction Noise Model, with operation of the two loudest pieces of construction equipment at a distance of 750 feet from the proposed project area, the noise level at the closest noise-sensitive receiver would be 59.9 dBA equivalent sound level. This does not take into account already existing ambient noise produced by roadway traffic on U.S. 101, which separates the proposed project from the nearest noise-sensitive receptor. Furthermore, ambient noise levels at the nearest noise-sensitive receiver are expected to be reduced during project construction because nearby Airport operations, particularly the use of Runways 1L-19R and 1R-19L, would be temporarily halted during project construction.

Any potential noise impacts associated with the delivery of construction materials are expected to be less than significant because contractors would use designated haul routes including U.S. 101 and connecting arterials to minimize impacts to residential and other noise-sensitive receptors. Although potential noise impacts associated with the delivery of construction materials are expected to result in less-than-significant impacts, **Improvement Measure I-TR-1** the project sponsor has agreed to adopt an improvement measure that would further reduce any non-significant transportation effects associated with construction activities, because it entails by-developing and implementing a traffic control plan. **Improvement Measure I-TR-1** is presented in Topic E.5, Transportation and Circulation, of this Initial Study on pages 671 through 735.

Impact NO-4: The proposed project would not expose people residing or working in an area within two miles of the Airport to excessive noise levels. (Less than Significant)

The proposed project is located on a public airport and would not result in substantial or significant temporary or periodic increases in noise levels to people residing or working in an area within 2 miles of the Airport. The proposed project would enhance the RSAs at SFO and would cause no increase in airport operations, or the number of passengers or aircraft operations at the Airport, or other activity that would lead to significant temporary or periodic increases in noise levels. As discussed under Impact NO-1, above, while noise increases would be anticipated in residential noise-sensitive areas adjacent to the Airport, dwellings in these areas already have been noise insulated as part of the Airport's RSIP, or property owners have declined to participate in the program. For the purposes of determining noise impacts, these land uses would not be considered significantly impacted. In addition, as discussed under Impact NO-3, above, any temporary noise resulting from construction of the proposed project would be less than significant at the nearest noise-

⁴⁰ Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment Guidance Manual*, Office of Planning and Environment, Issued May 2006. Available online at: http://www.fta.dot.gov/regions/region10/regional_offices_5312.html

sensitive receiver. Therefore, any impact associated with temporary or periodic increases in noise would be less than significant.

Impact C-NO: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would result in less-than-significant cumulative noise impacts. (Less than Significant)

Many past and present projects combined with future projects and ongoing uses and activities in the project area (on and off airport) contribute to incremental increases in noise levels. Airport employees working outside on airport property are required to wear hearing protection; and residential, commercial, and public uses lie within the CNEL 65 A-weighted noise contour. The nearby freeway network also contributes to noise levels. For all of these reasons, noise impacts in the vicinity of the project area are assumed to be cumulatively significant.

As described in Impacts NO-1 through NO-4 above, the proposed project would result in a less-than-significant impact associated with a change in exposure of persons to, and generation of, noise or vibration levels in excess of applicable thresholds. The nearest noise-sensitive receiver would be separated from noise and vibration generating activities by a distance of approximately 750 and 1,000 feet, respectively, comprising portions of the airfield and U.S. 101. Furthermore, because existing noise levels at the nearest noise-sensitive receiver exceed CNEL 65 dBA due to Airport operations, particularly the use of Runways 1L-19R and 1R-19L that would be temporarily halted during project construction, ambient noise levels during project construction would be reduced. The residential noise-sensitive area that would be exposed to increased noise levels during operation of the proposed project is located within the City of Millbrae. The City of Millbrae has completed its RSIP program; all residential units within the city adversely affected by airport noise have been noise insulated, or the property owners have declined to participate in the program. Noise-sensitive uses that have received, or have been offered, noise insulation as part of an FAA-approved noise insulation program are not considered to be noise-sensitive land uses for the purposes of determining noise impacts. In addition, ~~the project sponsor has agreed to adopt~~ **Improvement Measure I-NO-1**, detailed on page 1024, ~~to~~ offers noise insulation for the two residences that would experience a change within the CNEL 65 dBA contour of 1.5 dBA or higher, and whose owners had previously declined insulation. In light of the above, the proposed project's noise impacts would not be cumulatively considerable, and the proposed project would result in less-than-significant cumulative noise impacts.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
7. AIR QUALITY Would the project:					
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal, state, or regional ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒	☐

An air quality assessment and a health risk assessment were performed for the SFO RSA Program. The proposed project would not change the number of aircraft operations and the aircraft fleet mix serving SFO or result in a net increase in long-term operational emissions from any other activities; therefore, a long-term operational emissions inventory is not required. By comparison, construction activities would occur as a result of the proposed project, and the air quality assessment therefore focused on the potential impacts related to these activities.

The analyses were conducted in accordance with the Bay Area Air Quality Management District (BAAQMD) *CEQA Air Quality Guidelines*. The temporary (i.e., construction) and cumulative emissions related to the project were analyzed and compared to the appropriate significance thresholds within the BAAQMD *CEQA Air Quality Guidelines* (adopted on June 2, 2010 and updated in May of 2011)⁴¹.

Background

The primary factors that determine air quality in the San Francisco Bay Area Air Basin are the locations of air emission sources and the amounts of pollutants emitted. Meteorological and topographical conditions are also important factors. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape affecting the movement and dispersal of air pollutants.

⁴¹ Bay Area Air Quality Management District (BAAQMD), *California Environmental Quality Act Air Quality Guidelines*, Adopted June 2, 2010, Updated in May 2011. Available online at: <http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Updated-CEQA-Guidelines.aspx>. Accessed June 17, 2011.

The peninsula region of the San Francisco Bay Area Air Basin extends from the area northwest of San Jose to the Golden Gate. The Santa Cruz Mountains extend up the center of the peninsula, with elevations exceeding 2,000 feet at the south end, and gradually decreasing to an elevation of 500 feet in South San Francisco, where it terminates. San Francisco is at the north end of the peninsula and because most of the topography of San Francisco is below 200 feet, the marine layer is able to flow across most of the city, making its climate relatively cool and windy.

Average maximum and minimum winter (i.e., January) temperatures at SFO are 56 and 42 degrees Fahrenheit (°F), respectively, while average summer (i.e., July) maximum and minimum temperatures are 72 and 54 °F, respectively. Precipitation at SFO averages approximately 20 inches per year. Annual average wind speeds range from 5 to 10 miles per hour (mph) throughout the peninsula.

Regulatory Setting

The federal Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (U.S. EPA) to establish and periodically review National Ambient Air Quality Standards (national standards or NAAQS) to protect public health and welfare. National standards have been established for the following seven air pollutants, many of which have been made more stringent by California standards: ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter equal to or less than 10 micrometers (coarse particulates or PM₁₀), particulate matter equal to or less than 2.5 micrometers (fine particulates or PM_{2.5}), and lead.

The California Air Resources Board (CARB) manages air quality, regulates mobile emissions sources, and oversees the activities of county and regional air districts within California. CARB also regulates local air quality indirectly by establishing California Ambient Air Quality Standards (state standards or CAAQS) and vehicle emissions standards, and by conducting research, planning, and coordination activities. As mentioned, California has adopted ambient standards that are more stringent than the federal standards for the seven criteria air pollutants.

The BAAQMD has jurisdiction over the San Francisco Bay Area Air Basin, which encompasses nine counties, including San Mateo. The BAAQMD is responsible for ensuring that federal and state air quality standards are met by monitoring ambient air pollutant levels throughout the region and implementing strategies to attain the standards. The Association of Bay Area Governments (ABAG) and the MTC, county transportation agencies, cities and counties, and various nongovernmental organizations are also involved in managing air quality in the region.

The BAAQMD monitors air quality at more than 30 locations throughout the San Francisco Bay Area. The closest monitoring station to SFO is located approximately 10 miles north at 16th and Arkansas Streets in San Francisco. Criteria pollutants monitored at this location include ozone, CO, NO₂, SO₂, PM₁₀, and PM_{2.5}. A

summary of the monitored pollutants for 2007 through 2009 is included in the *Air Quality Technical Report*⁴² prepared for the SFO RSA Program. The data show a trend of generally improving (i.e., lower) concentrations over this time period.

Under the CAA, the U.S. EPA has classified the San Francisco Bay Area as marginally nonattainment for the 1997 8-hour ozone standard and required attainment of the standard by 2007. The U.S. EPA has determined that the San Francisco Bay Area has met this standard, but before a formal redesignation can be assigned, a formal request and Maintenance Plan must be submitted. However, in May 2008, the U.S. EPA lowered the 8-hour ozone standard from 0.080 parts per million (ppm) to 0.075 ppm and, in January 2010, the U.S. EPA again proposed to revise this standard to between 0.060 ppm and 0.070 ppm. The new attainment/nonattainment designation for the San Francisco Bay Area is expected to be issued within one year from final adoption of the revised standards.

In December 2008, the U.S. EPA proposed to designate the entire San Francisco Bay Area as nonattainment for the 24-hour PM_{2.5} NAAQS, which was scheduled to become effective in April 2009. However, the effective date for this designation is still pending.

Under the California Clean Air Act (CCAA), patterned after the federal CAA, areas have also been designated as attainment or nonattainment with respect to the state standards. With respect to state standards, the San Francisco Bay Area is presently designated as a nonattainment area for ozone and both PM₁₀ and PM_{2.5}.

Impact AQ-1: The project would not conflict with or obstruct implementation of the applicable air quality plan. (Less than Significant)

On September 15, 2010, the BAAQMD adopted the *2010 Bay Area Clean Air Plan*⁴³. The *2010 Clean Air Plan* updates the *Bay Area 2005 Ozone Strategy* in accordance with the requirements of the CCAA to implement all feasible measures to reduce ozone; provide a control strategy to reduce ozone, particulate matter, air toxics, and greenhouse gases (GHG) in a single, integrated plan; and establish emission control measures to be adopted or implemented in the 2010 through 2012 timeframe. The primary goals of the *2010 Clean Air Plan* are to:

- Attain air quality standards;
- Reduce population exposure and protecting public health in the San Francisco Bay Area; and
- Reduce GHG emissions and protect the climate.

⁴² KB Environmental Sciences, Inc., for URS Corporation, *Air Quality Technical Report for San Francisco International Airport Runway Safety Area Program*, June 2, 2011. This document is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

⁴³ BAAQMD, *Bay Area 2010 Clean Air Plan*, Adopted September 15, 2010. Available online at: <http://www.baaqmd.gov/Divisions/Planning-and-Research/Plans/Clean-Air-Plans.aspx>. Accessed June 17, 2011.

The BAAQMD recommended measure for determining project support of these goals is determined by considering 1) the primary goals of the *2010 Clean Air Plan*; 2) the consistency with the 55 control measures listed in the *2010 Clean Air Plan*; and 3) whether the project would hinder implementation of the *2010 Clean Air Plan*.

Air quality impacts of the proposed project are related to temporary (less than 3 years) construction activities. The SFO RSA Program would have no effect on operational activities at the Airport. The proposed project would incorporate **Mitigation Measure M-AQ-2** and **Improvement Measure I-AQ-2**, which would reduce emissions from construction activities.

The SFO RSA Program would be consistent with the *2010 Clean Air Plan* goals and would not conflict with the primary goals of the *2010 Clean Air Plan*. In addition, the proposed project would be consistent with the *2010 Clean Air Plan's* applicable specific control measures and actions. Of particular relevance to the proposed project is Mobile Source Measure (MSM) C-1 – Construction and Farming Equipment.

- MSM C-1 will work to reduce emissions from construction by pursuing the following strategies:
 - a) retrofit engines with diesel particulate filters or upgrade equipment with electric, Tier III or Tier IV off-road engines; b) develop more fuel-efficient off-road engines and drivetrains; and c) encourage the use of renewable electricity and renewable fuels, such as biodiesel from local crops, in applicable equipment.

SFO has developed a comprehensive *Air Quality Management Program*,⁴⁴ addressing air quality impacts from aircraft emissions and associated ground support equipment, cars, and buses driving in and around the Airport, and fuel and energy use at the Airport. The goals of this program include the use of alternative clean fuels for vehicles and equipment, retrofitting existing diesel-powered vehicles and equipment, and minimizing air emissions by increasing the use of clean energy sources. SFO's *Environmental Sustainability Program*⁴⁵ includes numerous emission reduction programs including recycling initiatives associated with construction and demolition debris. Thus, the proposed project would be consistent with the type of strategies promoted by MSM C-1 for Construction Equipment. Lastly, the proposed project does not include any components that would disrupt, delay, or otherwise hinder implementation of the *2010 Clean Air Plan* (e.g., preclude the extension of a transit line or bike path). Therefore, the proposed project would not conflict with the *2010 Clean Air Plan*.

Impact AQ-2: The project's construction activities would result in short-term emissions of fugitive dust. (Less than Significant with Mitigation)

Construction activities for the SFO RSA Program would include site preparation, grading, placement of infrastructure, placement of foundations for structures, and fabrication of structures. These excavation and construction activities would require the use of heavy trucks, excavating and grading equipment, material

⁴⁴ SFO, San Francisco International Airport, 2007 Environmental Sustainability Report, June 2007. Available online at: <http://www.flysfo.com/web/export/sites/default/download/about/reports/pdf/ESReport.pdf>. Accessed June 17, 2011.

⁴⁵ SFO, Sustainable SFO. Available online at: <http://www.flysfo.com/web/page/about/green/index.html>.

loaders, dozers, and other mobile and stationary construction equipment. Fugitive dust emissions during construction would be generated during ground-disturbing activities, materials handling, and mobile equipment use on unimproved surfaces. Fugitive reactive organic gas emissions would be generated during paving of taxiways and runways. Fugitive dust emissions would contribute particulate matter into the local atmosphere and can cause watering eyes or irritation to the lungs, nose, and throat. Depending on exposure, adverse health effects can occur due to this particulate matter in general and also due to specific contaminants that may be constituents of soil, such as lead or asbestos.

The BAAQMD's *CEQA Air Quality Guidelines*⁴⁶ require implementation of best management practices (BMPs) to control fugitive dust emissions for all projects located within the San Francisco Bay Area Air Basin. The BAAQMD has identified eight construction mitigation measures, and regards these measures as meeting the BMP threshold for fugitive dust emissions. Therefore, **Mitigation Measure M-AQ-2**, below, will be implemented to reduce fugitive dust impacts to less-than-significant levels. **Mitigation Measure M-AQ-2** addresses fugitive dust from windblown dust, loading/unloading materials, movement of materials, and equipment movement on unpaved surfaces, as well as exhaust emissions from idling.

Mitigation Measure M-AQ-2 – Implement Basic Construction Best Management Practices

The construction contractor shall reduce construction-related air pollutant emissions by implementing BAAQMD's basic fugitive dust control measures that are recommended for all projects located within the San Francisco Bay Area Air Basin. Therefore, the project shall include the following requirements in construction contracts:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- A publically visible sign shall be posted with the telephone number and person to contact at the Planning Department regarding dust complaints. This person shall respond and take

⁴⁶ Supra note 41.

corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, ~~California Code of Regulations~~ [CCR] Section 2485). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

Although the proposed project would result in less-than-significant impacts with implementation of **Mitigation Measure M-AQ-2**, given the extensive site preparation and material transport associated with the proposed project, ~~the project sponsor has agreed to implement Improvement Measure I-AQ-2, which would~~ further reduce fugitive dust emissions resulting from construction activities.

Improvement Measure I-AQ-2 – Implement Additional Fugitive Dust Emissions Reduction Measures

The construction contractor shall implement the following measures during construction to further reduce construction-related fugitive dust emissions:

- All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
- The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities in the same area at any one time shall be limited. Activities shall be phased if feasible to reduce the amount of disturbed surfaces at any one time.
- All trucks and equipment, including tires, shall be washed off prior to leaving the site.

Impact AQ-3: The project would not result in short-term construction emissions of criteria pollutants that would contribute to existing air quality violations. (Less than Significant)

As discussed under Impact AQ-2, construction activities for the SFO RSA Program would include site preparation, grading, placement of infrastructure, placement of foundations for structures, and fabrication of structures. In addition to fugitive dust emissions from construction activities, equipment exhaust would be generated from construction worker vehicle trips, material truck trips, and from the operations of construction equipment.

Construction exhaust emissions were estimated using CARB OFFROAD2007, EMFAC2007, and URBEMIS 2007 model (Version 9.2.4) emission models and other appropriate guidelines. The emission estimates combine information on construction schedule such as hours of operation and vehicle mileage with equipment emissions data specific to the San Francisco Bay Area Air Basin. The *Air Quality Technical Report* prepared for the SFO RSA Program provides detailed assumptions and methodologies for the construction emissions inventory.⁴⁷

The estimated average daily construction exhaust emissions over the entire construction period are presented in Table 11. These emissions are less than the applicable BAAQMD significance thresholds. Therefore, the proposed project would result in less-than-significant construction-related criteria air pollutant emissions, and additional construction mitigation measures are not required.

Table 11
Project Construction Average Daily Emissions Estimates

	Estimated Average Daily Unmitigated Emissions (pound per day)				
	ROG	NO _x	CO	PM ₁₀	PM _{2.5}
Project	14.5	50.1	328	4.8	4.4
<i>BAAQMD Threshold</i>	54	54	NA	82	54
Difference	(39.5)	(3.9)	NA	(77.2)	(49.6)
Exceeds Significance Threshold?	No	No	NA	No	No

Notes:

BAAQMD = Bay Area Air Quality Management District

CO = carbon monoxide

NA = not available

NO_x = oxides of nitrogen

PM₁₀ = particulate matter with diameter equal to or less than 10 microns

PM_{2.5} = particulate matter with diameter equal to or less than 2.5 microns

ROG = reactive organic gas

Impact AQ-4: The proposed project would not expose sensitive receptors to objectionable odors. (Less than Significant)

Typical odor sources of concern include wastewater treatment plants, sanitary landfills, transfer stations, composting facilities, petroleum refineries, asphalt batch plants, chemical manufacturing facilities, fiberglass manufacturing facilities, auto body shops, rendering plants, and coffee roasting facilities. Diesel-fueled construction equipment associated with the SFO RSA Program would generate some odors associated with diesel exhaust. Because these emissions would be temporary, limited to the construction period, and would typically dissipate quickly, they would be unlikely to affect a substantial number of people. Therefore, odor impacts associated with construction of the proposed project would be less than significant.

⁴⁷ Supra note 42.

Impact AQ-5: The proposed project's construction activities would not expose persons to substantial levels of toxic air contaminants that could lead to significant adverse health effects. (Less than Significant)

Some receptors are considered more sensitive to air pollutants than others, owing to pre-existing health problems, proximity to the emissions source, or duration of exposure to air pollutants. Land uses such as primary and secondary schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because the very young, the elderly, and the infirm are more susceptible to respiratory infections and other air quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people in residential areas are often at home for extended periods. Recreational land uses are considered moderately sensitive to air pollution because vigorous exercise associated with recreation places a high demand on respiratory system function. Residential receptors are located to the west, approximately 750 feet from the project site.

Project-related construction activities would produce diesel particulate matter (DPM), PM_{2.5} emissions, and other toxic air contaminants (TACs) associated with construction equipment such as loaders and backhoes. At elevated levels and under sufficient exposures, these emissions could lead to adverse health effects such as an increase in the risk of cancer or non-cancer health hazards, which are further discussed below.

Cancer Risk

Cancer risk is defined as the lifetime probability of developing cancer from exposure to carcinogenic substances. Cancer risks are expressed as the chances in one million of developing cancer, for example, ten cancer cases among one million people exposed.

Following health risk assessment guidelines included in BAAQMD's CEQA *Air Quality Guidelines*⁴⁸, BAAQMD's *Health Risk Screening Analysis Guidelines*⁴⁹, and in the California Office of Environmental Health Hazard Assessment (OEHHA) guidelines⁵⁰, incremental cancer risks (i.e., the additional risk above baseline levels attributable to the proposed project) were calculated by applying toxicity factors to modeled TAC concentrations in order to determine the inhalation dose (milligrams per kilogram of body weight per day). The estimated dose through inhalation was multiplied by the cancer potency slope factor to determine incremental cancer risk. The analysis is based on guidance from OEHHA for exposure parameters, including breathing rate, exposure periods, inhalation absorption factor, and age sensitivity factors.

⁴⁸ *Ibid.*

⁴⁹ BAAQMD, *Air Toxics NSR Program Health Risk Screening Analysis (HRSa) Guidelines*, Adopted January 2010. Available online at: http://www.baaqmd.gov/~media/Files/Engineering/Air%20Toxics%20Programs/hrsa_guidelines.ashx. Accessed June 17, 2011.

⁵⁰ California Office of Environmental Health Hazard Assessment (OEHHA), *Air Toxics Hot Spots Program Risk Assessment Guidelines, the Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, August 2003. Available online at: http://oehha.ca.gov/air/hot_spots/pdf/HRAguidefinal.pdf. Accessed June 17, 2011.

As a result of construction activities associated with the SFO RSA Program, the maximum cancer risk for the maximum exposed residential-adult receptor would be 0.12 per million. The maximum cancer risk for a residential-child would be 1.49. The cancer risk due to construction activities is therefore below the BAAQMD threshold of 10 per million and would be less than significant.

According to OEHHA guidelines, the results of a health risk assessment should not be interpreted as the expected rates of cancer or other potential human health effects, but rather as estimates of probability of potential risk based on current knowledge, a number of highly conservative assumptions, models, and techniques, and the best assessment tools presently available.

Non-Cancer Health Impacts

Both acute (short-term) and chronic (long-term) adverse health impacts unrelated to cancer are measured against a hazard index (HI), which is defined as the ratio of the predicted incremental exposure concentration from the project to a published reference exposure level (REL) for a particular TAC that could cause adverse health effects. The RELs are published by OEHHA and based on epidemiological research. The ratio (referred to as the Hazard Quotient) of each non-carcinogenic substance that affects a certain organ system is added to produce an overall HI for that organ system. The overall HI is calculated for each organ system. If the overall HI for the highest-impacted organ system is greater than one, then, based on BAAQMD significance criteria, the impact is considered to be significant.

The chronic REL for DPM was established by the California OEHHA⁵¹ as 5 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). There is no acute REL for DPM. However, diesel exhaust does contain acrolein, which does have an acute REL. BAAQMD's DPM speciation table (based on profile 4674 within the U.S. EPA Speciate 4.2)⁵² was used to assess the acute impacts of acrolein; represented as approximately 1.3 percent of the total diesel emissions. The acute REL for acrolein was established by the California OEHHA⁵³ as $2.5 \mu\text{g}/\text{m}^3$. The chronic impact analysis uses the annual maximum concentration while the acute impact uses the maximum 1-hour concentration over the three year construction period.

As a result of project-related construction, the chronic HI would be less than 0.01 and the acute HI would be 0.03 for the maximum exposed residential-adult receptor. The chronic HI would be less than 0.01 and the acute HI would be 0.03 for the maximum exposed residential-child receptor. The chronic and acute HI would be below the BAAQMD threshold of 1.0, and the impact of the project would therefore be less than significant.

⁵¹ California Office of Environmental Health Hazards Assessment Toxicity Criteria Database, 2010. Available online at: <http://www.oehha.ca.gov/tcdb/>. Accessed June 17, 2011.

⁵² Provides for a speciation fraction of 1.3 percent of acrolein per DPM emission rate. Available online at: <http://www.epa.gov/nrmrl/news/012010/news012010.html>. Accessed June 17, 2011.

⁵³ Supra note 51.

PM_{2.5} Concentration

Dispersion modeling was also used to predict the exposure of sensitive receptors to project-related emissions of PM_{2.5}. Because emissions of PM_{2.5} are associated with health risks, the BAAQMD has established a separate significance threshold to protect public health from this pollutant. Only PM_{2.5} exhaust emissions are included in this analysis as fugitive dust emissions are addressed under Impact AQ-2.

The maximum annual PM_{2.5} concentration as a result of project construction would be 0.01 µg/m³ at both the residential-adult and residential-child receptors. The annual PM_{2.5} concentration due to implementation of the proposed project is below the BAAQMD threshold of 0.3 µg/m³, and therefore impacts would be less than significant.

Impact AQ-6: The proposed project would not result in long-term operational emissions of criteria pollutants that could contribute to existing air quality violations or result in an increase in TACs that could affect nearby sensitive receptors. (Less than Significant)

The number of aircraft operations at, and the aircraft fleet mix using, SFO would not change as a result of the SFO RSA Program; thus, the proposed project would not result in an increase in long-term operational emissions of criteria pollutants or other TACs and operational air quality impacts would be less than significant.

Impact AQ-7: The proposed project would not cause an exceedance of the CAAQS for CO at traffic intersections as a result of the project. (Less than Significant)

The SFO RSA Program would not change the number of motor vehicles or the traffic patterns associated with SFO; therefore, the impact of the proposed project on localized CO concentrations would be less than significant. Construction activities would be temporary and onroad vehicles would be limited to employee traffic (an average of 113 vehicle trips per day) and periodic material deliveries.

The BAAQMD has identified preliminary screening criteria for determining whether CO emissions would be exceeded. The screening criteria provide a conservative indication of whether the implementation of the proposed project would result in CO emissions that are potentially significant. This methodology includes the following:

- The project traffic would increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- The project traffic would increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

The proposed project would not exceed these criteria. Thus, the SFO RSA Program is not expected to generate traffic volumes greater than the criteria and the impact on localized CO would be less than significant.

Impact C-AQ: The proposed project would not result in a cumulatively considerable impact on regional air quality or expose persons to cumulatively considerable levels of toxic air contaminants. (Less than Significant)

Regional Air Quality

CEQA defines cumulative impacts as two or more individual effects which, when considered together, are either significant or “cumulatively considerable,” meaning they add considerably to a significant environmental impact. Cumulative impacts can result from individually minor but collectively significant projects (CEQA Guidelines §15355).

An air quality cumulative impact analysis considers a project over time and in conjunction with other past, present, and reasonably foreseeable future projects whose air quality impacts might compound those of the project while overlapping in time and location. Projects that exceed the BAAQMD significance thresholds are considered to result in a considerable contribution to significant cumulative air quality impacts.

The project construction activities would be temporary in duration and limited to areas within SFO with minimal offsite vehicle trips. The SFO RSA Program would not change operational activities; resulting in no change in long term impacts. The SFO RSA Program’s air quality impacts would result in daily average emissions of less than the CEQA significance thresholds. Thus, the SFO RSA Program would not result in a considerable contribution to cumulative criteria air pollutant impacts.

Permitted Stationary Sources and Nearby Major Roadways

The BAAQMD’s *CEQA Air Quality Guidelines*⁵⁴ include standards and methods for determining the significance of cumulative health risk impacts. The method for determining cumulative health risk requires the addition of the health risks from permitted sources and major roadways in the vicinity of a project (i.e., within a 1,000-foot radius of the source, also considered the zone of influence for a health risk analysis), then adding the health risks of the proposed project impacts (in this case, construction activities) to determine whether the cumulative health risk thresholds are exceeded.

BAAQMD has developed a geo-referenced database of permitted TAC emissions sources throughout the San Francisco Bay Area and has developed the *Stationary Source Risk & Hazard Analysis Tool* (dated May 2011) for estimating cumulative health risks from permitted sources. Three permitted sources are located within

⁵⁴ Supra note 41.

1,000 feet of the fenceline of the proposed project (near ends on Runways 1R and 1L). These sources are listed in Table 12. Information associated with these sources was provided and/or verified by BAAQMD⁵⁵.

Table 12
Cumulative Health Impacts

Site #	Facility Type	Address/Source	Cancer Risk	Chronic Impact	PM _{2.5} Concentration
14418	Diesel IC Engine	190 Aviator Avenue	17.1	0.006	0.005
17572	Diesel IC Engine	1 Old Bayshore Highway	2.6	0.001	0.015
G9673	Fuel Dispensing	400 East Millbrae	NA	NA	NA
Permitted Sources Total			19.7	0.007	0.020
U.S. Highway 101			14.0	0.01	0.12
Roadway Total			14.0	0.01	0.12
Proposed Project			1.49	0.01	0.02
Cumulative Total			35.2	0.027	0.16
BAAQMD Cumulative Significance Criteria			100	10	0.8
Significant Cumulative Impact?			No	No	No

Notes:

BAAQMD = Bay Area Air Quality Management District

IC = internal combustion

NA = Not available

PM_{2.5} = particulate matter with diameter equal to or less than 2.5 microns

Information (cancer risks and chronic index) was adjusted for distance from source to receptor based on BAAQMD's *Distance Adjustment Multiplier for Diesel Internal Combustion Engine* and the *Distance Adjustment Multiplier for Gasoline Dispensing Facilities*. Source 14418 is within 110 feet of sensitive receptors; Source 17572 is within 2,065 feet of sensitive receptors, and Source G9673 is within 1,100 feet of sensitive receptors. *The Air Quality Technical Report* provides information on the screening impacts (unadjusted) and distance adjustment factors for this analysis. *The Air Quality Technical Report* also provides supporting BAAQMD Stationary Source Inquiry Forms and Distance Adjustment Multiplier tables.

U.S. 101 is located adjacent to (west side of the project site) and within 1,000 feet of the project and nearby sensitive receptors. Thus, the health impacts from this roadway were included in the cumulative analysis. BAAQMD has also developed a geo-referenced database of roadways throughout the San Francisco Bay Area and has developed the *Highway Screening Analysis Tool* (dated May 2011) for estimating cumulative health risks from roadways.

⁵⁵ Email from Andrea Gordon at BAAQMD on June 1, 2011 entitled Stationary Source Inquiry Form Request- SFO International Runway Safety Area (dated June 1, 2011) and Gas Station Stationary Source Inquiry – SFO RSA (dated June 16, 2011).

Roadway segments along U.S. 101 from East Millbrae Avenue to the SFO Interchange were reviewed within the geo-referenced database. Nearest receptors are between 250 and 350 feet to the roadway along these segments. The data associated with the southbound traffic impacts within the geo-referenced database were used, as the receptors of concern are to the west of U.S. 101 (nearest travel lanes). The data associated with the 6-foot height data within the geo-referenced database were used as most residences in the area are single-family residences; not multi-story apartments. The maximum impacts at the nearby receptors are displayed in Table 12.

In addition to the project-related construction emissions, the cumulative health risk impact to nearby sensitive receptors includes contributions from the BAAQMD-permitted stationary sources and from traffic operating on U.S. 101 within 1,000 feet of the project site. In addition, SFO operations are considered a non-permitted source (i.e., aircraft operations, ground support equipment, and other airport-related equipment) that also emit TACs as part of their operations. No other sources of TACs were identified within 1,000 feet of the project site. Table 12 shows the cumulative cancer risk, chronic hazard risk, and PM_{2.5} concentrations (in µg/m³) associated with these facilities for the maximum exposed individual. As shown, the cumulative cancer risk, chronic impacts, and PM_{2.5} concentrations would be below the BAAQMD cumulative significance criteria. The proposed project's construction emissions would not result in significant health risk impacts to nearby sensitive receptors. Therefore, the proposed project would not result in a considerable contribution to cumulative health risk or air quality impacts.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
8. GREENHOUSE GAS EMISSIONS Would the project:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐	☐
b) Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐	☐

Background

Gases that trap heat in the atmosphere are referred to as GHGs because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse does. The accumulation of GHGs has been implicated as the driving force for global climate change. The primary GHGs are carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), ozone, and water vapor.

While the presence of the primary GHGs in the atmosphere are naturally occurring, CO₂, CH₄, and N₂O are also emitted from human activities, accelerating the rate at which these compounds occur within earth's atmosphere. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas CH₄ results from

off-gassing associated with agricultural practices and landfills. Other GHGs include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and are generated in certain industrial processes. Greenhouse gases are typically reported in “carbon dioxide-equivalent” measures (CO₂e).⁵⁶

There is international scientific consensus that human-caused increases in GHGs have and will continue to contribute to global warming. Potential global warming impacts in California may include, but are not limited to, loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include a global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity.⁵⁷

CARB estimated that in 2006 California produced about 484 million gross metric tons of CO₂e (MMTCO₂e), or about 535 million U.S. tons.⁵⁸ CARB found that transportation is the source of 38 percent of the state’s GHG emissions, followed by electricity generation (both in-state and out-of-state) at 22 percent and industrial sources at 20 percent. Commercial and residential fuel use (primarily for heating) accounted for 9 percent of GHG emissions.⁵⁹ In the San Francisco Bay Area, fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) and the industrial and commercial sectors are the two largest sources of GHG emissions, each accounting for approximately 36 percent of the San Francisco Bay Area’s 95.8 MMTCO₂e emitted in 2007.⁶⁰ Electricity generation accounts for approximately 16 percent of the San Francisco Bay Area’s GHG emissions followed by residential fuel usage at 7 percent, off-road equipment at 3 percent and agriculture at 1 percent.⁶¹

Regulatory Setting

The following regulations and guidelines are applicable to GHGs in California.

Executive Order S-3-05

In 2005, in recognition of California’s vulnerability to the effects of climate change, Governor Schwarzenegger established Executive Order S-3-05, which set forth a series of target dates by which statewide emissions of GHGs would be progressively reduced, as follows:

⁵⁶ Because of the differential heat absorption potential of various GHGs, GHG emissions are frequently measured in “carbon dioxide-equivalents,” which present a weighted average based on each gas’s heat absorption (or “global warming”) potential.

⁵⁷ California Climate Change Portal. *Frequently Asked Questions About Global Climate Change*. Available online at: <http://www.climatechange.ca.gov/publications/faqs.html>. Accessed June 17, 2011.

⁵⁸ California Air Resources Board (CARB), “California Greenhouse Gas Inventory for 2000-2008— by Category as Defined in the Scoping Plan.” Available online at: http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_00-08_2010-05-12.pdf. Accessed July 13, 2011.

⁵⁹ *Ibid.*

⁶⁰ BAAQMD, Source Inventory of Bay Area Greenhouse Gas Emissions: Base Year 2007, Updated: February 2010. Available online at: http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/Emission%20Inventory/regionalinventory2007_2_10.ashx. Accessed June 17, 2011.

⁶¹ *Ibid.*

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

Assembly Bill 32 – California Global Warming Solutions Act

In 2006, the California legislature passed Assembly Bill (AB) 32 (California Health and Safety Code Division 25.5, Sections 38500, et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 requires CARB to design and implement emission limits, regulations, and other measures, such that feasible and cost-effective statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25 percent reduction in emissions).

AB 32 requires CARB to establish a statewide GHG emissions cap for 2020 based on 1990 emission levels. AB 32 required CARB to adopt regulations by January 1, 2008 that identify and require selected sectors or categories of GHG emitters to report and verify their statewide GHG emissions, and CARB is authorized to enforce compliance with the program. Under AB 32, CARB was also required to adopt a statewide GHG emissions limit by January 1, 2008, equivalent to the statewide GHG emissions levels in 1990, which must be achieved by 2020. CARB established this limit, in December 2007, at 427 MMTCO₂e. This is approximately 30 percent below forecasted business-as-usual emissions of 596 MMTCO₂e, and about 10 percent below average annual GHG emissions during the period of 2002 through 2004.

On January 1, 2011, CARB was required to adopt rules and regulations (which will become operative January 1, 2012), to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 permits the use of market-based compliance mechanisms to achieve those reductions. AB 32 also requires CARB to monitor compliance with and enforce any rule, regulation, order, emission limitation, emissions reduction measure, or market-based compliance mechanism that it adopts.

In June 2007, CARB directed staff to pursue 37 early actions for reducing GHG emissions under AB 32. The broad spectrum of strategies to be developed, including a Low Carbon Fuel Standard, regulations for refrigerants with high global warming potential, guidance and protocols for local governments to facilitate GHG reductions, and green ports, reflects that the serious threat of climate change requires action as soon as possible.

In addition to approving the 37 GHG reduction strategies, CARB directed staff to further evaluate early action recommendations made at the June 2007 meeting, and to report back to CARB within 6 months. CARB suggested a desire to attempt to pursue greater GHG emissions reductions in California in the near term. Since the June 2007 CARB hearing, CARB staff has evaluated all 48 recommendations submitted by

stakeholders and several internally-generated staff ideas and published the *Expanded List of Early Action Measures To Reduce Greenhouse Gas Emissions In California Recommended For Board Consideration*⁶².

Pursuant to AB 32, CARB adopted a Scoping Plan in December 2008, outlining measures to meet the 2020 GHG reduction limits. In order to meet these goals, California must reduce its GHG emissions by 30 percent below projected 2020 business as usual emission levels or about 15 percent from today's levels.⁶³ The Scoping Plan estimates a reduction of 174 MMTCO₂e (about 191 million U.S. tons) from the transportation, energy, agriculture, forestry, and high global warming potential sectors (see Table 13 on the following page). CARB has identified an implementation timeline for the GHG reduction strategies included in the Scoping Plan.⁶⁴ Some measures may require new legislation to implement, some will require subsidies, some have already been developed, and some will require additional effort to evaluate and quantify. Additionally, some emissions reductions strategies may require their own environmental review under CEQA or NEPA.

AB 32 also anticipates that local government actions will result in reduced GHG emissions. CARB has identified a GHG reduction target of 15 percent from current levels for local governments themselves and notes that successful implementation of the plan relies on local governments' land use planning and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions.

The CARB Scoping Plan relies on the requirements of Senate Bill (SB) 375 to implement the carbon emission reductions anticipated from land use decisions. SB 375 was enacted to align local land use and transportation planning to further achieve the state's GHG reduction goals. SB 375 requires regional transportation plans (RTPs), developed by Metropolitan Planning Organizations, to incorporate a "sustainable communities strategy" in their RTPs that would achieve GHG emission reduction targets set by CARB. SB 375 also includes provisions for streamlined CEQA review for some infill projects such as transit-oriented development. SB 375 would be implemented over the next several years and the MTC's 2013 RTP would be its first plan subject to SB 375.

SB 97 required the Office of Planning and Research (OPR) to amend the state CEQA Guidelines to address the feasible mitigation of GHG emissions or the effects of GHGs. In response, OPR amended the CEQA Guidelines to provide guidance for analyzing GHG emissions. Among other changes to the CEQA Guidelines, the amendments add a new section to the CEQA Initial Study Checklist to address questions regarding the project's potential to emit GHGs.

⁶² CARB, *Expanded List of Early Action Measures To Reduce Greenhouse Gas Emissions In California Recommended For Board Consideration*, October 2007. Available online at: http://www.arb.ca.gov/cc/ccea/meetings/ea_final_report.pdf. Accessed June 17, 2011.

⁶³ CARB, *California's Climate Plan Fact Sheet*, Updated January 27, 2010. Available online at: http://www.arb.ca.gov/cc/facts/scoping_plan_fs.pdf. Accessed June 17, 2011.

⁶⁴ CARB, *Scoping Plan Measures Implementation Timeline*, October 28, 2010. Available online at: http://www.arb.ca.gov/cc/scopingplan/sp_measures_implementation_timeline.pdf. Accessed June 17, 2011.

Table 13
Greenhouse Gas Reductions from the Assembly Bill 32 Scoping Plan Sectors⁶⁵

GHG Reduction Measures By Sector	GHG Reductions (MMTCO ₂ e)
Transportation Sector	62.3
Electricity and Natural Gas	49.7
Industry	1.4
Landfill Methane Control Measure (Discrete Early Action)	1
Forestry	5
High Global Warming Potential GHGs	20.2
Additional Reductions Needed to Achieve the GHG Cap	34.4
Total	174
Other Recommended Measures	
Government Operations	1-2
Agriculture- Methane Capture at Large Dairies	1
Methane Capture at Large Dairies	1
Additional GHG Reduction Measures	
Water	4.8
Green Buildings	26
• High Recycling/Zero Waste • Commercial Recycling • Composting • Anaerobic Digestion • Extended Producer Responsibility • Environmentally Preferable Purchasing	9
Total	42.8-43.8

Notes:

GHG = greenhouse gas

MMTCO₂e = million gross metric tons of carbon dioxide equivalents

⁶⁵ *Ibid.*

California Environmental Quality Act Guidelines Revisions

In 2007, the California legislature passed SB 97, which required amendment of the CEQA Guidelines to incorporate analysis of, and mitigation for, GHG emissions from projects subject to CEQA. The California Natural Resources Agency adopted these amendments on December 30, 2009, and they took effect March 18, 2010, after review by the Office of Administrative Law and filing with the Secretary of State for inclusion in the CCR.

The CEQA Guideline revisions include a new section (Section 15064.4) that specifically addresses the significance of GHG emissions. Section 15064.4 calls for a good-faith effort to describe, calculate or estimate GHG emissions; Section 15064.4 further states that the significance of GHG impacts should include consideration of the extent to which the project would increase or reduce GHG emissions; exceed a locally applicable threshold of significance; and comply with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The revisions also state that a project may be found to have a less-than-significant impact if it complies with an adopted plan that includes specific measures to sufficiently reduce GHG emissions (Sec. 15064(h)(3)). Importantly, however, the revised guidelines do not require or recommend a specific analysis methodology or provide quantitative criteria for determining significance of GHG emissions.

Bay Area Air Quality Management District

The BAAQMD is the primary agency responsible for air quality regulation in the nine county San Francisco Bay Area Air Basin. As part of their role in air quality regulation, BAAQMD has prepared CEQA air quality guidelines to assist lead agencies in evaluating air quality impacts of proposed projects and plans. The guidelines provide procedures for evaluating potential air quality impacts during the environmental review process consistent with CEQA requirements. On June 2, 2010, the BAAQMD adopted new and revised CEQA air quality thresholds of significance and issued revised guidelines that supersede the 1999 air quality guidelines. The *CEQA Air Quality Guidelines* provide CEQA thresholds of significance for operational GHG emissions from land use projects for the first time. The BAAQMD has not defined GHG thresholds from construction activities, but recommends that significance be determined in relation to meeting AB 32 GHG reduction targets. OPR's amendments to the CEQA Guidelines as well as BAAQMD's *CEQA Air Quality Guidelines* and thresholds of significance have been incorporated into the analysis of potential GHG impacts associated with the proposed project.

Impact GG-1: The proposed project would generate greenhouse gas emissions, but not in levels that would result in a significant impact on the environment, nor would the proposed project conflict with any policy, plan, or regulation adopted for the purpose of reducing greenhouse gas emissions. (Less than Significant)

The most common GHGs resulting from human activity are CO₂, CH₄, and N₂O.⁶⁶ State law defines GHGs to also include hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. These latter GHG compounds are usually emitted in industrial processes, and therefore not applicable to the SFO RSA Program. Individual projects contribute to the cumulative effects of climate change by directly or indirectly emitting GHGs during construction and operational phases.

GHG emissions associated with SFO RSA Program construction activities were quantified based on the CARB OFFROAD and EMFAC emissions models through estimations of fuel usage.

Estimated GHG emissions that would be associated with construction are presented in Table 14. As indicated, maximum annual construction-related GHG emissions would be 2,978 metric tons during 2014. The lifetime of the construction project would vary from between 5 and 7 years for pavement elements, approximately 20 years for EMAS, and approximately 30 years for other infrastructure elements. Given the construction emissions by construction element, the lifetime of the construction project was estimated at 10 years. The construction GHG emissions amortized over a 10-year period would equal 580 metric tons per year. The reported GHG emissions do not include exhaust emissions reductions resulting from compliance with **Mitigation Measure M-AQ-2**, which may further reduce GHG emissions, as well as criteria pollutants, as they are difficult to quantify.

Table 14
Project-Related Greenhouse Gas Emissions

Construction Year	GHG CO _{2e} Metric Tons Per Year
2012	988
2013	1,829
2014	2,978
Annual construction-related emissions amortized over 10 years	580

Notes:

CO_{2e} = carbon dioxide equivalents

GHG = greenhouse gas

⁶⁶ Governor's Office of Planning and Research (OPR), *Technical Advisory, CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*. June 19, 2008. Available online at: <http://www.opr.ca.gov/ceqa/pdfs/june08-ceqa.pdf>. Accessed June 17, 2011.

The *Air Quality Technical Report* prepared for the SFO RSA Program presents technical background and information used to develop the GHG analysis, including assumptions and methodologies used for the emissions inventory.⁶⁷

Based on the BAAQMD's *CEQA Air Quality Guidelines*, projects that are consistent with San Francisco's *Strategies to Address Greenhouse Gas Emissions*⁶⁸ would result in a less than significant impact with respect to GHG emissions. Furthermore, because San Francisco's strategy is consistent with AB 32 goals, projects that are consistent with San Francisco's strategy would also not conflict with the State's plan for reducing GHG emissions.

The City's 2017 and 2025 GHG reduction goals are more aggressive than the state's GHG reduction goals as outlined in AB 32, and consistent with the state's long-term (2050) GHG reduction goals. San Francisco's *Strategies to Address Greenhouse Gas Emissions* identifies the City's actions to pursue cleaner energy, energy conservation, alternative transportation and solid waste policies, and concludes that San Francisco's policies have resulted in a reduction in GHG emissions below 1990 levels, meeting statewide AB 32 GHG reduction goals. As reported, San Francisco's 1990 GHG emissions were approximately 8.26 MMTCO₂e and 2005 GHG emissions are estimated at 7.82 MMTCO₂e, representing an approximately 5.3 percent reduction in GHG emissions below 1990 levels.

The BAAQMD reviewed San Francisco's *Strategies to Address Greenhouse Gas Emissions* and concluded that the strategy meets the criteria for a Qualified GHG Reduction Strategy as outlined in BAAQMD's CEQA Guidelines and stated that San Francisco's "aggressive GHG reduction targets and comprehensive strategies help the San Francisco Bay Area move toward reaching the state's AB 32 goals, and also serve as a model from which other communities can learn."⁶⁹

Through the *SFO 2007 Environmental Sustainability Report*⁷⁰ and the *SFO Climate Action Plan*⁷¹, the Airport has vigorously supported the City's climate change initiatives (specifically Ordinance No. 81-08 Climate Change Goals) and has established the achievement of carbon neutrality by 2020 as a goal for SFO. SFO's sustainability efforts are an integral part of its mission and its effort to improve air quality and reduce global warming. The *Air Quality Technical Report* prepared for the SFO RSA Program provides additional information on the *SFO Climate Action Plan* and sustainability efforts.⁷²

⁶⁷ Supra note 42.

⁶⁸ San Francisco Planning Department, *Strategies to Address Greenhouse Gas Emissions in San Francisco*, 2010. Available online at: <http://www.sf-planning.org/index.aspx?page=2627>.

⁶⁹ Letter from Jean Roggenkamp, BAAQMD, to Bill Wycko, San Francisco Planning Department, October 28, 2010.

⁷⁰ SFO, San Francisco International Airport, *2007 Environmental Sustainability Report, June 2007*. Available online at: <http://www.flysfo.com/web/export/sites/default/download/about/reports/pdf/ESReport.pdf>. Accessed June 17, 2011.

⁷¹ SFO, *San Francisco International Airport Climate Action Plan*, Revised February 2010. Available online at: <http://www.flysfo.com/downloads/SFOClimateActionPlan2010.pdf>. Accessed June 17, 2011.

⁷² Supra note 42.

The *SFO Climate Action Plan* includes a carbon footprint for three categories of sources: Category 1 – Airport-controlled emissions; Category 2 – tenant-owned emissions; and Category 3 – other emissions not directly emitted by but connected with SFO, such as passenger vehicles traveling to and from the Airport. The focus of the *SFO Climate Action Plan* is on the assessment and reduction of Category 1 GHG emissions.⁷³ Reduction measures for Category 2 and 3 GHG emissions are encouraged in cooperation with the various stakeholders as a part of SFO's *Environmental Sustainability Program*.

Based on the BAAQMD's *CEQA Air Quality Guidelines*, projects that are consistent with San Francisco's *Strategies to Address Greenhouse Gas Emissions* would result in a less than significant impact with respect to GHG emissions. Furthermore, because San Francisco's GHG reduction strategy is consistent with AB 32 goals, projects that are consistent with San Francisco's strategy would not conflict with the state's plan for reducing GHG emissions. The *SFO Environmental Sustainability Report* and the *SFO Climate Action Plan* are consistent and an integral component of San Francisco's *Strategies to Address Greenhouse Gas Emissions*, which, in turn is consistent with the AB 32 goals.

The proposed project would result in GHG emissions during construction activities, but these emissions would be temporary—associated with the short-term construction period—and would not continue after completion of project construction. Therefore, the proposed project would not generate significant levels of GHG emissions. Furthermore, SFO has committed to reducing long-term operational GHG emissions as part of the *SFO Climate Action Plan* and *SFO Environmental Sustainability Report*, resulting in overall reductions in annual GHGs with the goal of carbon neutrality by 2020. As discussed above, SFO's *Climate Action Plan* is an integral component of San Francisco's *Strategies to Address Greenhouse Gas Emissions*. The proposed project would not conflict with this plan or the state's GHG reduction goals, as defined in AB 32. Therefore, the proposed project would not result in GHG emissions that would have a significant impact on the environment, nor would the proposed project conflict with any policy, plan, or regulation adopted for the purpose of reducing GHG emissions, and GHG impacts would be less than significant.

⁷³ Supra note 71.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
9. WIND AND SHADOW Would the project:					
a) Alter wind in a manner that substantially affects public areas?	☐	☐	☒	☐	☐
b) Create new shadow in a manner that substantially affects outdoor recreation facilities or other public areas?	☐	☐	☐	☒	☐

Impact WS-1: The proposed project would not alter wind in a manner that substantially affects public areas. (Less than Significant)

SFO is located within the BAAQMD's peninsula climatological subregion. The peninsula region extends from northwest of San Jose to the Golden Gate. The Santa Cruz Mountains extend up the center of the peninsula, with elevations exceeding 2,000 feet at the southern end, decreasing to 10 feet at SFO. Because most of the peninsula's topography is below 200 feet, marine air is able to flow easily across most of the area, making its climate cool and windy.

Two important gaps in the Santa Cruz Mountains occur on the peninsula. The larger of the two is the San Bruno Gap, extending from Fort Funston on the ocean side to the Airport (the other gap is the Crystal Springs Gap, between Half Moon Bay and San Carlos). Because the San Bruno Gap is oriented in the same northwest-to-southeast direction as the prevailing winds, and because the elevations along the gap are less than 200 feet, marine air easily blows into San Francisco Bay and the Airport area.

Annual average wind speeds range from 5 to 10 mph throughout the peninsula. However, winds on the eastern side of the peninsula are often higher in certain areas, such as near the San Bruno Gap and the Crystal Springs Gap. On the east side of the mountains, winds are generally from the west, although wind patterns in this area are often influenced greatly by local topographic features and seasonal variations.

Wind impacts may be generated by large building masses extending substantially above their surroundings, or by buildings oriented so that a large wall catches a prevailing wind, particularly if such a wall includes little or no articulation. The proposed project would be located entirely on existing airport property, and would be constructed mostly at grade, with the exceptions of the relocated navigational aids, approach lighting systems mounted on trestles in the San Francisco Bay, relocated pump station, electrical substation, and blast fence. These project improvements would not be tall or large enough to significantly change the wind patterns within the area. Furthermore, the proposed project improvements are separated from surrounding public parks by U.S. 101, existing industrial buildings, residential homes, and commercial areas. Topic E.10, Recreation, on pages 1287 and 1298 of this Initial Study, includes a listing of public parks within the project area, and Figure 14 on page 49 shows their locations relative to the proposed project. The nearest public park or open space area is located approximately 0.04 mile (215 feet) from the Airport boundaries within the City

of Millbrae at Bay Front Park. The relocated blast fence would be approximately 300 feet from Bay Front Park, would be similar to the existing fence in height and general alignment, and would not substantially change wind patterns at this location. Therefore, the proposed project would result in less-than-significant impacts on public areas resulting from altering wind patterns.

Impact WS-2: The proposed project would not create new shadow in a manner that substantially affects outdoor recreation facilities or other public areas. (No Impact)

The proposed project would be developed entirely on existing airport property. No outdoor recreation facility or other public area that would be affected by new shadows is located in the immediate vicinity of the project site (the nearest public park or open space area is located approximately 0.06 mile from the airport boundaries within the City of Millbrae at Bay Front Park). Furthermore, most SFO RSA Program improvements would be made at grade, except for the relocation of navigational aids on the airfield, construction of a pump station, electrical substation, and blast fence. The tallest structures (e.g., relocated navigational aids such as the glide slope antennas) would not exceed 50 feet in height and would not cast new shadows beyond the SFO property boundaries. Therefore, no impact would occur that would substantially affect outdoor recreation facilities or other public areas.

Impact C-WS: The proposed project, in combination with other past, present or reasonably foreseeable projects, would result in less-than-significant cumulative impacts on wind patterns and shadow impacts. (Less than Significant)

Development in the airport vicinity, including on-airport projects listed on Table 6 on pages 553 and 564, would have less-than-significant cumulative wind impacts on public areas. The proposed project would not substantially change wind patterns in public areas. Hence, the proposed project would have less-than-significant cumulative wind impacts.

As stated above, the proposed project would not result in any shadow impacts to outdoor recreation facilities or public areas. Therefore, the proposed project would not contribute to cumulative shadow impacts.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
10. RECREATION					
Would the project:					
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	☐	☐	☐	☒	☐
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒	☐
c) Physically degrade existing recreational resources?	☐	☐	☒	☐	☐

The proposed project is within 1 mile of seven parks in the cities of San Bruno and Millbrae, which are listed below in Table 15 below, and shown on Figure 14 on page 49.

Impact RE-1: The proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated, nor would the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment. (No Impact)

The SFO RSA Program would cause no increase in airport operations, or the number of passengers or aircraft operations at the Airport. Therefore, the proposed project would not result in changes to the patronage of surrounding parks and recreational areas located in the cities of San Bruno and Millbrae, or to regional parks or other recreational facilities, and would not require the construction or expansion of recreational facilities.

Table 15
Parks and Recreation Areas within the Project Vicinity

Parks	City	Distance from SFO (miles)
7th Avenue and Walnut Park	San Bruno	0.30
Bay Front Park	Millbrae	0.04
Bayside Manor Park	Millbrae	0.06
Forest Lane Park	San Bruno	0.82
Lions Field	San Bruno	0.20
Marina Vista Park	Millbrae	0.10
Posey Park	San Bruno	0.52

Sources: U.S. Geological Survey Geographic Names Information System/San Mateo County Parcels, 2011.

Therefore, the proposed project would not cause substantial physical deterioration of any parks or recreational facility.

Impact RE-2: The proposed project would not physically degrade existing recreational resources. (Less than Significant)

The proposed project would not require the acquisition of parks and recreation areas in the project vicinity, or induce greater use of such areas, and would therefore not directly affect parks and recreational areas. As further discussed in Topic E.6, Noise, of this Initial Study, approximately 8.8 acres would be exposed to a change in the CNEL of 1.5 dBA at or above CNEL 65 dBA, which includes small portions of Bayside Manor Park in Millbrae. Facilities within this park include a basketball court, a playground, and an open space area. Bayside Manor Park is already exposed to noise levels of CNEL 65 dBA and higher and the increase of 1.5 dBA would not be perceptible to park users. The increase in noise levels in the Bayside Manor Park area would not constitute a substantial impairment of this resource, or physically degrade this recreational resource; therefore, impacts would be less than significant.

Impact C-RE: The proposed project, in combination with other past, present, or reasonably foreseeable projects would result in less-than-significant impacts to recreational resources. (Less than Significant)

Cumulative development projects are expected to result in a relatively small planned increase in population and recreational resource users, and cumulative impacts are expected to be less than significant. As discussed above, the use of parks within the vicinity is not likely to increase with the proposed project, nor would the proposed project result in physical degradation of recreational resources. The SFO RSA Program would not enhance airport operations capacity that would lead to increased park patronage. Hence, the proposed project would have less-than-significant cumulative impacts on recreational resources.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
11. UTILITIES AND SERVICE SYSTEMS					
Would the project:					
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐	☐
d) Have sufficient water supply available to serve the project from existing entitlements and resources, or require new or expanded water supply resources or entitlements?	☐	☐	☐	☒	☐
e) Result in a determination by the wastewater treatment provider that would serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐	☐

Because implementation of the proposed project would cause no increase in airport operations, or the number of passengers or aircraft operations at the Airport, construction or expansion of water or wastewater treatment facilities would not be required. Therefore, criterion 11b is not applicable to the proposed project.

Impact UT-1: The proposed project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board. (No Impact)

The proposed project would not include new airport operational activities that would introduce additional sources of pollutants and/or increase discharges to the wastewater treatment system. In addition, because the proposed project would cause no increase in airport operations, or the number of passengers or aircraft operations at the Airport, generation of wastewater would not increase as a result of the project. Therefore, the proposed project would have no impact on wastewater treatment requirements of the San Francisco Bay Regional Water Quality Control Board (RWQCB).

Impact UT-2: The proposed project would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less than Significant)

The proposed project would alter portions of the existing storm water drainage system, but is not expected to substantially change overall airport drainage patterns. Storm water treatment and discharge would remain the same for the majority of the project area. Currently, storm water runoff is conveyed to the four detention basins and outfalls by sheet flow (runoff that flows over land) and through underground piping and culverts. Alterations to the storm water drainage system would occur in South Detention Basin's drainage area, which includes the southern two-thirds of Runways 1L-19R and 1R-19L and their associated taxiways. The existing South Detention Basin would be filled as part of the RSA improvements to Runways 1L-19R and 1R-19L, and an underground replacement detention basin would be constructed to the southeast of these runways (see Figure 10 on page 25). New catch basins and a pump would be installed, and an existing outfall would be replaced in the southern part of the Airport (see Figure 10 on page 25). Underground piping and culverts would be modified to connect the replacement basin, new pump, and replacement outfall with the existing storm drainage system.

During project construction, erosion control measures and BMPs would be implemented to minimize the effects of erosion, sedimentation, and leakage of vehicle and equipment fluids. Erosion control measures that may be implemented include, but are not limited to, mulching, temporary seeding, wattles, and silt fencing. Pollution prevention and waste management plans would be developed for the proposed project to address the storage, handling, and disposal of fuel, oils, and other wastes from project construction activities. In addition, good housekeeping would be practiced during construction. These measures and plans would aid in storm water treatment during construction activities. The contractor would comply with federal, state, and local requirements or guidelines to meet water quality objectives for water discharge, including the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, 2009-0009-DWQ, as amended by 2010-0014-DWQ (General Construction Permit); the San Francisco Bay RWQCB Basin Plan; and the SFO Storm Water Pollution Prevention Plan (SWPPP).

After the proposed project has been implemented, storm water runoff collected in the underground detention basin would continue to be discharged to the Mel Leong Treatment Plant-Industrial Waste Process (MLTP-IWP) for treatment and subsequent discharge to San Francisco Bay similar to current practices and in compliance with the SFO SWPPP, which has been prepared in accordance with the requirements of the State Water Resources Control Board (SWRCB) General Permit for storm water discharges associated with industrial activities (97-03-DWQ). There would be no substantial change from the proposed project in the quantity or quality of the storm water discharge. Therefore, impacts on storm water drainage facilities from construction and implementation of the proposed project would be less than significant.

Impact UT-4: Sufficient water supply would be available to serve the proposed project from existing entitlements and resources, and no new or expanded water supply resources or entitlements would be required. (No Impact)

The proposed project would cause no increase in airport operations, or the number of passengers or aircraft operations at the Airport. Therefore, water use would not increase as a result of the proposed project. Furthermore, the proposed project would not require relocation or disturbance of public drinking water supply pipelines or local distribution systems. Therefore, no impact on water supply is anticipated as a result of the proposed project.

Impact UT-5: The proposed project would not result in a determination by the wastewater treatment provider that would serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments. (No Impact)

The proposed project would cause no increase in airport operations, or the number of passengers or aircraft operations at the Airport that would introduce additional sources of pollutants or increase discharges to the wastewater treatment system. Hence, there would be no impact on the capacity of the wastewater treatment system to serve the proposed project in addition to the system's existing commitments.

Impact UT-6: The proposed project would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs and would comply with federal, state, and local statutes and regulations related to solid waste. (Less than Significant)

SFO's environmental compliance department oversees the solid waste collection, disposal, recycling, and hazardous waste programs. Solid waste collection and recycling are coordinated by SFO for airport tenants. Locked dumpsters are distributed throughout SFO for waste collection and South San Francisco Scavenger Company is contracted to collect and transport solid waste and recycling to its South San Francisco transfer station and Material Recovery Facility. Once processed to remove recyclable materials, the solid waste is transferred by South San Francisco Scavenger Company to the Altamont Landfill and Resource Recovery Facility operated by Waste Management, Inc. This landfill has a total estimated permitted capacity of 62 million cubic yards. Currently, approximately 16.3 million cubic yards (approximately 26.3 percent) have been used, and approximately 45.2 million cubic yards of capacity remain. The facility has a projected closure date of 2029.⁷⁴

No new solid waste facilities or expansion of existing facilities would be required as a result of the project because the proposed project would cause no increase in airport operations, or the number of passengers or aircraft operations at the Airport. Debris associated with construction of the proposed project would be

⁷⁴ California Department of Resources Recycling and Recovery, *CalRecycle Active Landfills Profile for Altamont Landfill and Resource Recovery* (01-AA-0009). Available online at: <http://www.calrecycle.ca.gov/Profiles/Facility/Landfill/LFProfile1.asp?COID=1&FACID=01-AA-0009>. Accessed on March 2011.

recycled wherever feasible in accordance with applicable laws, ordinances and regulatory requirements. The volume of post-diversion demolition debris is not expected to be significant relative to existing annual disposal volumes, and is not expected to result in significant impacts on solid waste. Therefore, solid waste generated from the project's construction and operation would not substantially affect the projected life of the landfill, and impacts from solid waste generation or impacts on solid waste facilities would be less than significant.

Impact C-UT: In combination with past, present, and reasonably foreseeable future development in the project site area, the proposed project would have a less-than-significant cumulative impact on utilities and service systems. (Less than Significant)

The proposed project, along with other development in the project area, would incrementally increase demand on utilities and service systems, but not beyond levels anticipated and planned for by public service providers in existing service management plan areas. This increased demand would therefore result in less-than-significant cumulative impacts on existing utilities and service systems. The proposed project would result in a slight increase in demand on utilities and service systems for runway status lighting on runways. Hence, the project would result in less-than-significant cumulative impacts on utilities and services for wastewater treatment and/or capacity, storm water drainage facilities, water supply, and/or waste disposal facilities.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact	Not Applicable
12. PUBLIC SERVICES Would the project:					
a) Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any public services such as fire protection, police protection, schools, parks, or other services?	☐	☐	☒	☐	☐

Background

SFO is served by existing police and fire protection by the CCSF. Public services within the project area outside of airport property, including police and fire protection, schools, and parks, are provided by local jurisdictions (South San Francisco, San Bruno, Millbrae, and Burlingame). The location of the project site relative to these services is described below.

Impact PS-1: The proposed project would not result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any public services such as fire protection, police protection, schools, parks, or other services. (Less than Significant)

Police and Fire Protection

The San Francisco Fire Department – Airport Division and the San Francisco Police Department – Airport Bureau serve SFO. The proposed project would enhance aviation safety and access to the airfield for emergency vehicles, but would not alter airport operations, or increase the number of passengers or aircraft operations at the Airport. Hence, the proposed project would not increase the demand for fire/emergency response and law enforcement services. Therefore, the proposed project's effects on police protection, fire, and emergency services would be less than significant.

Parks and Schools

As noted in Topic E.10, Recreation, of this Initial Study, there are a total of six parks in the vicinity of the project site in the cities of San Bruno and Millbrae. The proposed project would not cause an increase in airport operations, or the number of passengers or aircraft operations at the Airport, and therefore would not increase patronage of these parks and recreational areas. Therefore, project impacts on parks and recreation would be less than significant.

As discussed in Topic E.3, Population and Housing, of this Initial Study, the proposed project would cause no increase in airport operations, or the number of passengers or aircraft operations at the Airport, or result in substantial population growth. For these reasons, the proposed project is not likely to generate new students or increase the need for new or expanded school facilities. Therefore, the proposed project would have no impact on schools.

Impact C-PS: The proposed project, in combination with other past, present or reasonably foreseeable projects, would result in less-than-significant public services impacts. (Less than Significant)

Cumulative development in the project area, including the proposed project, would incrementally increase demand for public services, but not beyond levels anticipated and planned for by public service providers. Cumulative impacts related to public services would therefore be less than significant. The proposed project would enhance aviation safety and emergency vehicle access, but would not cause an increase in airport operations, or the number of passengers or aircraft operations at the Airport, and therefore would not increase demand on fire, police, or emergency services; nor would it result in cumulative impacts on parks and recreational services. Furthermore, because the proposed project would not increase population within the

area, schools in the surrounding area would not be affected. Hence, the proposed project would have less-than-significant cumulative impacts on public services.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
13. BIOLOGICAL RESOURCES Would the project:					
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☐	☒

There are no Habitat Conservation Plans, Natural Community Conservation Plans, or other local, regional, or state habitat conservation plans that are applicable to the project area. Therefore, criterion 13f is not applicable.

Background

The project area supports the following vegetation or cover types: developed (structures/landscaping), annual grassland, seasonal wetlands, freshwater/marsh, tidal marsh, tidal mudflats, and open water (San Francisco Bay).

Developed. Developed portions of the project area consist of the existing runways, taxiways, service/roads, buildings, and other structures associated with the airfield. Vegetation associated with these areas is limited to sparse ornamental plantings of native and nonnative trees and shrubs adjacent to some of the buildings. The majority of wildlife expected to use developed portions of the project area are bird species adapted to urban areas, such as American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), rock pigeon (*Columba livia*), mourning dove (*Zenaida macroura*), European starling (*Sturnus vulgaris*), and house finch (*Carpodacus mexicanus*). Common urban-adapted mammal species that may forage on the airfield at night include coyote (*Canis latrans*), northern raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*). Amphibian and reptile use of developed areas is expected to be minimal, although concrete rubble piles, riprap, and other hard surfaces may support small numbers of western fence lizard (*Sceloporus occidentalis*) and southern alligator lizard (*Elgaria multicarinatus*).

Annual Grassland. Annual grassland is the dominant vegetation type in the infield areas (i.e., nonpaved areas between runways, taxiways, and aircraft apron areas). These areas are mowed regularly and occasionally sprayed with herbicides to control plant growth for aircraft safety reasons as required under 14 CFR 7 Part 139 – Wildlife Hazard Management. The density of vegetation cover in the infield areas is dependent on a variety of factors, including elevation, soil compaction, and soil salinity, and ranges from mostly barren areas with no plant cover, to sparsely vegetated areas with widely scattered plants, to more densely vegetated areas nearing 100 percent cover. Vegetation cover in the infield areas also varies from areas dominated by mildly to moderately hydrophytic species (i.e., seasonal wetlands) to areas dominated by species commonly associated with uplands. Dominant species include ryegrass (*Lolium* sp.), cut-leaf plantain (*Plantago coronopus*), birds-foot trefoil (*Lotus corniculatus*), hare barley (*Hordeum murinum*), and pearly everlasting (*Anaphalis margaritacea*).⁷⁵ The infield areas provide habitat for bird species that forage in open grasslands, such as horned lark (*Eremophila alpestris*), American pipit (*Anthus rubescens*), savannah sparrow (*Passerculus sandwichensis*), western meadowlark (*Sturnella neglecta*), and red-winged blackbird (*Agelaius phoeniceus*). However, the ongoing aircraft operations and maintenance activities at the airfield, including activities implemented as part of SFO's Wildlife Hazard Management Plan,⁷⁶ likely preclude most of these species from nesting. The infield grass areas also support small populations of burrowing rodents, such as deer mouse (*Peromyscus maniculatus*), California vole (*Microtus californicus*), and Botta's pocket gopher (*Thomomys bottae*), which provide prey resources for raptors, such as white-tailed kite (*Elanus leucurus*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), barn owl (*Tyto alba*), and great horned owl (*Bubo virginianus*).

⁷⁵ URS, *Proposed SFO Runway Reconfiguration Program Biological Technical Report*. Prepared for City and County of San Francisco Planning Department, San Francisco, California, and Federal Aviation Administration, Burlingame, California. June 15, 2001. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

⁷⁶ ICF Jones and Stokes, *Wildlife Hazard Management Plan*, June 2011. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

Seasonal Wetlands. Several seasonal wetlands with similar species composition to adjacent grasslands are also scattered throughout the infield areas and consist of topographic depressions that collect water during the rainy season. In addition to the species identified above, some depressions support brass buttons (*Cotula coronopifolia*), curly dock (*Rumex crispus*), and pickleweed (*Salicornia virginica*). Wading birds, such as great blue heron (*Ardea herodias*), great egret (*Ardea alba*), and snowy egret (*Egretta thula*) forage in the airfield's seasonal wetlands, as well as along the shoreline and in the tidal marsh.

Freshwater Marsh. A small amount of freshwater marsh vegetation occurs around the margins of two artificially constructed drainage features south of Runway 1R-19L: South Oxidation Pond and Bird Ball Ditch. South Oxidation Pond is an earthen-bottomed sediment basin that was constructed in 1966 to collect surface runoff from the southern portion of the Airport. Bird Ball Ditch is a 40-foot-wide stormwater channel located northeast of South Oxidation Pond that was also constructed to collect runoff from the southern portion of the airfield. A small band of alkali bulrush (*Scirpus robustus*) and cattails (*Typha latifolia*) is present around the margin of this feature and represents the sole freshwater/marsh vegetation within the project area. The bottom of South Oxidation Pond also supports hydrophytic species characteristic of seasonal wetlands, such as saltgrass (*Distichlis spicata*), prickle grass (*Crypsis vaginiflora*), velvet grass (*Holcus lanatus*), brass buttons, and curly dock. The slopes of both features are dominated by a dense growth of ruderal herbaceous species, including wild radish (*Raphanus sativa*) and bristly ox-tongue (*Picris echioides*).

Tidal Marsh. Tidal marsh within the project area is limited to an approximately 50- to 100-foot-wide band southeast of Runway 1R-19L. The marsh is comprised of several elevational zones that vary in plant species composition due to differences in tidal inundation and subsequent variations in salinity. Lower marsh elevations adjacent to tidal mudflats and open water support dense stands of both native cordgrass (*Spartina foliosa*) and nonnative invasive smooth cordgrass (*Spartina alterniflora*). Cordgrass also grows along the margins of tidal channels that protrude into the middle and upper marsh elevations. Middle elevations are dominated by pickleweed, which intermixes with increasing amounts of alkali heath (*Frankenia salina*) and saltgrass as the marsh transitions into the adjacent upland zone. The upland areas are dominated by dense patches of nonnative ruderal species, such as Italian thistle (*Carduus pycnocephalus*), iceplant (*Carpobrotus edulis*), and bristly ox-tongue, as well as annual grasses. The middle and upper portions of the tidal marsh southeast of Runway 1R-19L provide foraging habitat for many of the same bird species that occur in nearby developed, annual grassland, and seasonal wetland habitats. The tidal marsh also supports a variety of species that are specially adapted to the salt-tolerant vegetation, microhabitats (e.g., channels and sloughs), and tidal regimes. Many such species receive special regulatory protection from both federal and state natural resource agencies due to their habitat specificity and limited occurrence around San Francisco Bay (see Special-Status Species discussion below). Amphibian or reptile use of tidal marshes and mudflats is limited due to high salinity and frequency of inundation. Western fence lizards and southern alligator lizards have been observed on dikes and outfall structures adjacent to the marsh habitats, but are not expected to use portions of the marsh subject to tidal influence.

Tidal Mudflats. The tidal mudflats near SFO are composed of silt, clay, and fine sand, and include organic debris and shell fragments. They also support a diverse community of benthic invertebrates such as clams,

worms, mussels, and crabs, which are a valuable food source for many species of shorebirds. This cover type is most prevalent in the Burlingame tidal flats southeast of SFO (i.e., Runway 1R-19L). These tidal mudflats provide valuable foraging habitat for shorebird species, such as black-necked stilt (*Himantopus mexicanus*), American avocet (*Recurvirostra americana*), willet (*Tringa semipalmata*), marbled godwit (*Limosa fedoa*), long-billed curlew (*Numenius americanus*), western sandpiper (*Calidris mauri*), dunlin (*Calidris alpina*), dowitchers (*Limnodromus* spp.), black-bellied plover (*Pluvialis squatarola*), and least sandpiper.⁷⁷

Open Water. Open water refers to open San Francisco Bay waters within the project area below mean lower low water (MLLW), including shallow bay (i.e., from MLLW to 18 feet below MLLW) habitats as defined in the Baylands Ecosystem Habitat Goals Project (Goals Project).⁷⁸ The sediments of shallow bays and channels are primarily composed of mud. Common marine fish known to occur in San Francisco Bay waters adjacent to SFO include English sole (*Parophrys vetulus*), Bay goby (*Lepidogobius lepidus*), northern anchovy (*Engraulis mordax*), speckled sanddab (*Citharichthys stigmaeus*), topsmelt (*Atherinops affinis*), arrow goby (*Clevelandia ios*), staghorn sculpin (*Leptocottus armatus*), striped surfperch (*Embiotoca lateralis*), and yellowfin goby (*Acanthogobius flavimanus*).⁷⁹ Shark and ray species that may occasionally forage along the Bay floor and riprapped shoreline areas include leopard shark (*Triakis semifasciata*), spiny dogfish (*Squalus acanthias*), bat ray (*Myliobatis californica*), California skate (*Raja inornata*), and big skate (*Raja binoculata*). The open San Francisco Bay waters adjacent to SFO also provide habitat for a wide variety of waterbirds (i.e., ducks, shorebirds, and waders) throughout the year, with the largest concentrations in the winter. Diving ducks, such as greater scaup (*Aythya marila*), surf scoter (*Melanitta perspicillata*), bufflehead (*Bucephala albeola*), ruddy duck (*Oxyura jamaicensis*), and canvasback (*Aythya valisineria*), are the primary species occurring in the vicinity of SFO, while dabbling ducks, such as mallard (*Anas platyrhynchos*), northern shoveler (*Anas clypeata*), and American wigeon (*Anas americana*) are less common to rare. Other birds that spend the majority of their time roosting in or foraging over open water include the eared grebe (*Podiceps nigricollis*), horned grebe (*Podiceps auritus*), pied-billed grebe (*Podilymbus podiceps*), double-crested cormorant (*Phalacrocorax auritus*), California gull (*Larus californicus*), western gull (*Larus occidentalis*), and Forster's tern (*Sterna forsteri*).

Special-Status Species

Special-status species potentially occurring in the vicinity of the project area are listed in Appendix AB. The table was compiled by reviewing the CNDDDB⁸⁰ for records of special-status species within the Montara Mountain, San Mateo, Hunters Point, and San Francisco South U.S. Geological Survey 7.5-minute

⁷⁷ Ibid.

⁷⁸ San Francisco Bay Area Wetland Ecosystem Goals Project (Goals Project), Baylands Ecosystem Habitat Goals: A report of habitat recommendations prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project, 1999. Available online at: <http://www.sfei.org/sites/default/files/sfbaygoals031799.pdf>.

⁷⁹ Supra note 75.

⁸⁰ California Department of Fish and Game (CDFG), California Natural Diversity Database (CNDDDB), Biogeographic Data Branch, Commercial version dated October 31, 2010. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

quadrangles, as well as the California Native Plant Society's Inventory of Rare and Endangered Plants⁸¹ and an official online species list provided by the U.S. Fish and Wildlife Service's (USFWS') Sacramento Fish and Wildlife Office.⁸² The table also contains several special-status bird species that are absent from the above-mentioned lists, but have been observed at the SFO airfield by LSA Associates, Inc. (LSA) and/or URS Corporation biologists (e.g., golden eagle) or have the potential to occur based on the presence of suitable habitat (e.g., short-eared owl).⁸³ ~~No~~ A botanical assessment and focused late season ~~focused~~ surveys for special-status plant species ~~were~~ was conducted as part of this analysis in August 2011.⁸⁴ The presence or potential presence of the 15 special-status animal species discussed below is based on direct observation by LSA biologists in 2010, including detection of calling birds such as California clapper rail and Alameda song sparrow, or the documented presence of suitable habitat. Information on the presence of California clapper rail in the tidal marsh southeast of the airfield was also obtained from annual California clapper rail survey reports (2007 through 2009) prepared for the San Francisco Estuary Invasive Spartina Project.^{85,86,87}

Plants. Most of the special-status plant species in Appendix AB are dependent on habitats and/or substrates that do not occur in the vicinity of the project area (e.g., chaparral or serpentine soils) and are thus not expected to occur. No special-status plant species have been observed or are expected to occur in the project vicinity due to its history of disturbance and consequent lack of suitable habitat, including marsh sandwort (*Arenaria paludicola*), Point Reyes bird's-beak (*Cordylanthus maritimus* ssp. *palustris*), Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*), California seablite (*Suaeda californica*), and San Francisco owl's-clover (*Triphysaria floribunda*). With the exception of San Francisco owl's-clover, none of these species has been recorded in the Mid-Peninsula or South Bay areas. The disturbed condition of the uplands and upper marsh transition zone within the project vicinity further precludes the presence of special-status plants. Marsh sandwort and Delta tule pea are not included in Appendix AB because they were not identified through

⁸¹ California Native Plant Society (CNPS), Inventory of Rare and Endangered Plants, Online edition v8 01a, 2011. Available online at: <http://www.rareplants.cnps.org>.

⁸² U.S. Fish and Wildlife Service (USFWS), Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Hunters Point, San Francisco South, Montara Mountain, and San Mateo U.S. Geological Survey 7.5-minute quadrangles, Sacramento Fish & Wildlife Office, Updated April 29, 2010. Available online at: http://www.fws.gov/sacramento/es/spp_list.htm.

⁸³ Supra note 75.

⁸⁴ LSA Associates, Inc. (LSA), 2011. Results of Botanical Assessment and Focused Survey for Special-Status Plants for the Proposed Runway Safety Area Project, San Francisco International Airport. Letter to San Francisco Planning Department, October 27, 2011. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

⁸⁵ Spautz, H., 2007. California Clapper Rail Surveys for the San Francisco Estuary Invasive Spartina Project: 2007. Submitted to Olofson Environmental, Inc., Berkeley, California. Prepared for San Francisco Estuary Invasive Spartina Project, Oakland, CA. June 30. [http://www.spartina.org/project_documents/clapper_rails/2007_CLRA_Rpt_HS\(sm\).pdf](http://www.spartina.org/project_documents/clapper_rails/2007_CLRA_Rpt_HS(sm).pdf).

⁸⁶ McBroom, J., 2008. California Clapper Rail Surveys for the San Francisco Estuary Invasive Spartina Project: 2008. Prepared for San Francisco Estuary Invasive Spartina Project, Oakland, CA. Olofson Environmental, Berkeley, CA. June 30. http://www.spartina.org/project_documents/clapper_rails/CLRA-Rpt-OEI_2008.pdf.

⁸⁷ McBroom, J., 2009. California Clapper Rail Surveys for the San Francisco Estuary Invasive Spartina Project: 2009. Prepared for San Francisco Estuary Invasive Spartina Project, Oakland, CA. Olofson Environmental, Berkeley, CA. November. http://www.spartina.org/project_documents/clapper_rails/2009_CLRA_Rpt_all.pdf.

database/searches. In addition, marsh sandwort is only known to occur in San Luis Obispo County, and Delta tule pea is only known to occur in North Bay marshes.⁸⁸

Focused surveys for the five special-status species noted above were conducted in Bay Front Park, immediately adjacent to (southeast of) SFO between June 27 and July 2, 2000, and none of these species were observed.⁸⁹ In addition, a botanical assessment and focused late season survey for special-status plant species was conducted on August 30, 2011, in accordance with CDFG protocols.^{90,91} The target species for the survey consisted of marsh sandwort (*Arenaria paludicola*), coastal marsh milk-vetch (*Astragalus pycnostachyus* var. *pycnostachyus*), alkali milk-vetch (*Astragalus tener* var. *tener*), papoose tarplant (*Centromadia parryi* ssp. *parryi*), Pt. Reyes bird's beak (*Cordylanthus maritimus* ssp. *palustris*), pale yellow tarplant (*Hemizonia congesta* ssp. *congesta*), delta tule pea (*Lathyrus jepsonii* var. *jepsonii*), Choris' popcorn flower (*Plagiobothrys chorisianus* var. *chorisianus*), California seablite (*Suaeda californica*), saline clover (*Trifolium hydrophilum*), and San Francisco owl's clover (*Triphysaria floribunda*). None of the eleven target special-status plant species were observed during the focused survey of the project areas. Seven of the eleven species are either in bloom during late August or are large enough plants to have been observed during the survey. These seven species include marsh sandwort, coastal marsh milk-vetch, papoose tarplant, Pt. Reyes bird's beak, pale yellow tarplant, delta tule pea, and California seablite. Therefore, these seven species are not likely to occur in the project areas. The four remaining target species that bloom earlier in the season include alkali milk-vetch, Choris' popcorn flower, saline clover, and San Francisco owl's clover. These four species are not likely to occur in the project areas because of the dominant component of nonnative species (these four species occur mostly in areas with native habitats) and the lack of suitable edaphic conditions. In addition, the absence of recent occurrences along the western shore of San Francisco Bay reduces the probability of these species dispersing to SFO. The dried remains of Choris' popcorn flowers can often be observed in seasonal wetlands during the dry season. However, no remains of this species or other popcorn flowers were observed during the field survey. In addition, Choris' popcorn flower is unlikely to occur in the seasonal wetland in the Runways 28L and 28R project area because this seasonal wetland is not a natural feature and there are no known populations of this species within a reasonable dispersal distance. Therefore, based on the results of the botanical assessment and focused survey, it is unlikely that special-status plants occur in the vicinity of the project area.

Animals. Of the 38 special-status animal species listed in Appendix AB, 15 have either been observed within or adjacent to the project area or could potentially occur based on the presence of suitable habitat. The following special-status fish species may occasionally occur in San Francisco Bay waters in the vicinity of the project area: green sturgeon (*Acipenser medirostris*; federally listed threatened), longfin smelt (*Spirinchus*

⁸⁸ *Ibid.*

⁸⁹ Supra note 75.

⁹⁰ Supra note 84.

⁹¹ California Department of Fish and Game (CDFG), 2009. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities*, November 24, 2009. Available online at: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols_for_Surveying_and_Evaluating_Impacts.pdf.

thaleichthys; state-listed threatened), Sacramento River winter-run Chinook salmon (*Oncorhynchus tshawytscha*; federally and state-listed endangered), Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*; federally and state-listed threatened) and central California coast steelhead (*Oncorhynchus mykiss*; federally listed threatened). Special-status bird species known to occur in the tidal marsh southeast of the airfield include California clapper rail (federally and state-listed endangered; California Fully Protected Species), salt marsh common yellowthroat (California Species of Special Concern), Alameda song sparrow (California Species of Special Concern), and Bryant's savannah sparrow (California Species of Special Concern). Six special-status raptor species have either been observed in the project vicinity or could potentially occur based on the presence of suitable foraging habitat: golden eagle (*Aquila chrysaetos*; California Fully Protected Species), northern harrier (*Circus cyaneus*; California Species of Special Concern), American peregrine falcon (*Falco peregrinus anatum*; California Fully Protected Species), burrowing owl (*Athene cunicularia*; California Species of Special Concern), short-eared owl (*Asio flammeus*; California Species of Special Concern), and white-tailed kite (California Fully Protected Species). Further information on the potential for these species to occur within the project area is provided in Appendix AB.

Both California red-legged frog (*Rana draytonii*; federally listed threatened) and San Francisco garter snake (*Thamnophis sirtalis tetrataenia*; federally and state-listed endangered; California Fully Protected Species) are known to occur on the Airport's West-of-Bayshore property west of U.S. 101, but neither has been observed east of the highway. Neither species is expected to disperse to the airfield due to significant physical barriers such as U.S. 101, extensive drainage infrastructure, increased salinity, and the absence of suitable upland/aquatic habitat on the airfield. This conclusion is consistent with the findings of the USFWS Biological Opinion for SFO's Master Plan project and the long-standing USFWS position that neither species is present east of U.S. 101.

The salt marsh harvest mouse (*Reithrodontomys raviventris raviventris*; federally and state listed endangered; California Fully Protected Species) is not expected to occur in the project area due to the marginal habitat quality and limited extent of the existing tidal marsh adjacent to SFO (i.e., limited area of pickleweed-dominated middle marsh and lack of dense cover in upper marsh and adjacent uplands); the isolation of the marsh from known populations farther south (i.e., the nearest known occurrence of this species is 7.6 miles away); the abundance of terrestrial and avian predators; and the absence of adequate undisturbed/unmaintained uplands and upper marsh transition habitat adjacent to the tidal marsh to provide important refugia for this species during high-tide events.

Sensitive Habitats

Jurisdictional Waters. Jurisdictional waters (i.e., wetlands and other waters of the United States under U.S. Army Corps of Engineers [USACE] jurisdiction pursuant to Section 404 of the federal Clean Water Act [CWA]) within the project area include 2.41 acres of seasonal wetlands in South Oxidation Pond (see Figure 24 on page 1434). As described above, South Oxidation Pond supports hydrophytic vegetation characteristic of seasonal wetlands, such as saltgrass, prickly grass, velvet grass, brass buttons, and curly dock. A small band of alkali bulrush and cattails is also present around the margin of the basin bottom. While this feature was in active

use in 1996 and supported primarily open-water conditions (i.e., other waters of the United States), the pond now supports mostly seasonal wetland habitat due to lower contributions of stormwater runoff. ~~This feature was previously verified by the USACE in 2002.~~⁹²

An unquantified amount of tidal marsh is present below the 5.0-foot elevation contour along the southeastern edge of the airfield (i.e., southeast of Runway 1R-19L; see Figure 24 on page 143~~4~~). The marsh consists of an approximately 100-foot-wide band made up of several elevational zones that vary in species composition due to differences in tidal inundation and subsequent variations in salinity. Lower elevations support dense stands of native cordgrass, as well as nonnative invasive smooth cordgrass. Cordgrass also grows along the margins of tidal channels that protrude into the middle and upper marsh elevations. Middle elevations are dominated by pickleweed, which intermixes with increasing amounts of alkali heath and saltgrass as the marsh transitions into the adjacent upland zone. The upland zone is dominated by dense patches of ruderal species, such as Italian thistle, iceplant, and bristly ox-tongue, as well as annual grasses. ~~The boundary of the tidal marsh was previously verified by the USACE in a letter dated January 11, 2000~~⁹³

Other waters of the United States within the project area consist of Bird Ball Ditch (0.36 acre) and the Millbrae Highline Canal (0.73 acre) (see Figure 24 on page 143~~4~~). Similar to South Oxidation Pond, Bird Ball Ditch was constructed to collect stormwater runoff from the southern portion of the Airport, and has a small band of alkali bulrush and cattails around its perimeter. The channel is segmented into two ponds, one of which contains plastic floating balls used to discourage bird use. The balls completely cover the surface of the downstream pond. ~~This feature was previously verified by the USACE in 2002, as mentioned above.~~

The Millbrae Highline Canal is a concrete-lined stormwater channel located to the south of South Oxidation Pond. The canal carries runoff from South Lomita Canal on the West-of-Bayshore property and other watershed lands within the City of Millbrae to the west, and transports flows through tide gates to San Francisco Bay. At the waterline, the canal is 25 feet wide; the total jurisdictional area of the canal within the project area is 0.73 acre (see Figure 24 on page 143~~4~~). The canal does not have vegetation and is 45 feet wide at the top of the concrete slopes.

A 0.54-acre seasonal wetland area is also present in the project area between an airfield access road and the east end of Runway 10L-28R (see Figure 25 on page 145). The edge of this area is within 50 feet of an active runway, and so has been subject to significant attention by SFO for the management of bird strike hazards. The area consists of a shallow topographical depression that collects water during the rainy season due to the lack of a connection to nearby drainage infrastructure. The depression has a plant species composition similar to adjacent grasslands, but has a higher cover by hydrophytic plant species such as soft rush (*Juncus effusus*), brass buttons, and curly dock. ~~In 2002, this area was considered isolated, and therefore a nonjurisdictional feature, by the USACE.~~

⁹² U.S. Army Corps of Engineers (USACE), U.S. Army Corps of Engineers File #24402S, April 2, 2002. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

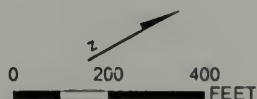
⁹³ USACE File #22218S, January 11, 2000. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.



LEGEND

- Jurisdictional Area
- Non-jurisdictional Waters
- Tidal Marsh Jurisdictional Boundary

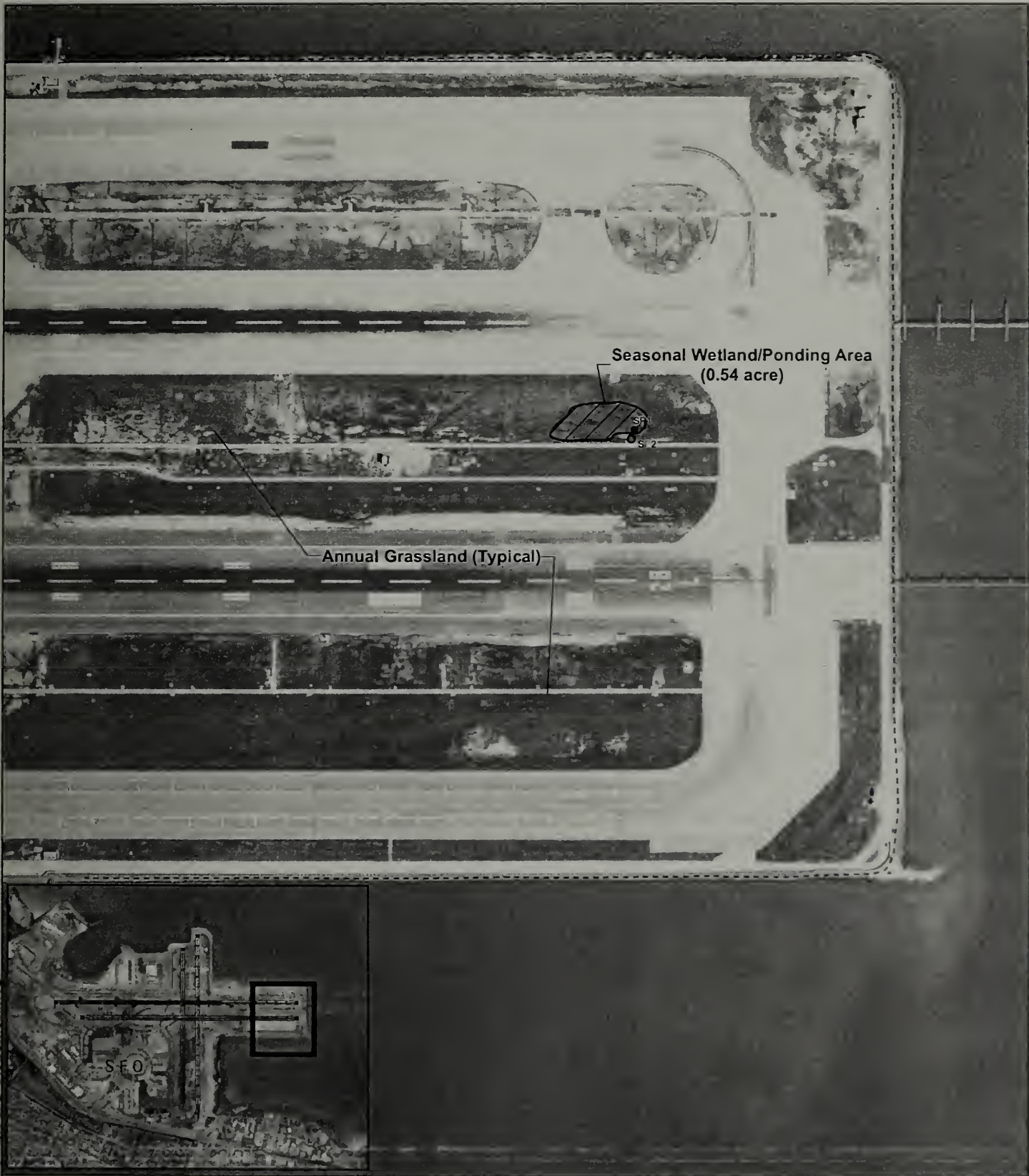
Source:
Aerial Photo, USGS, 2009.



JURISDICTIONAL AREAS IN THE VICINITY OF RUNWAYS 1L AND 1R

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

FIGURE 24



LEGEND

- Wetland Sample Point
- Non-wetland Sample Point
- High Tide Line

Source:
Aerial Photo, USGS, 2009.



JURISDICTIONAL AREAS IN THE VICINITY OF RUNWAYS 28L AND 28R

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

FIGURE 25

A delineation of the RSA project site, including all of the above-described areas, was conducted in 2010 following standard USACE jurisdictional delineation methodology. The project sponsor submitted a letter describing the results of the delineation to the USACE on May 19, 2011,⁹² requesting verification of the jurisdictional areas on the project site. ~~USACE verification of the jurisdictional delineation is currently pending. The extent of jurisdictional features on the project site is subject to final verification by the USACE.~~ The extent of the jurisdictional areas within the project site was verified by the USACE on August 3, 2011.⁹³

Sensitive Natural Communities. The tidal marsh southeast of the SFO airfield, termed northern coastal salt marsh by Holland (1986), is identified as a sensitive natural community in the CNDDDB. Other sensitive natural communities occurring in the general vicinity of SFO include northern maritime chaparral, valley needlegrass grassland, and serpentine bunchgrass. None of these communities are present in the project area due to SFO's construction on fill within San Francisco Bay, its highly active aircraft operations and urbanized setting and the area's history of disturbance.

Impact BI-1: The proposed project could impact special-status fish species if proper avoidance and minimization measures are not implemented. (Less than Significant with Mitigation)

As mentioned above, five special-status fish species may occasionally occur in the vicinity of the project area: green sturgeon, longfin smelt, Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, and central California coast steelhead. The proposed project involves the installation of a total of 30 new 20-inch-diameter timber pilings in San Francisco Bay to accommodate the relocation of the approach lighting systems at the approach ends of Runway 19L (20 pilings) and Runways 28L and 28R (10 pilings). If conducted during the migratory period (December 1 through June 14), pile installation activities could directly impact green sturgeon, longfin smelt, Chinook salmon, and steelhead that could potentially be present in the vicinity. Pile driving could affect migratory behavior or injure juvenile and larval steelhead if peak sound pressure levels exceed 190 decibels (dB). Although there is little data on the sound pressure levels required to injure fish, short-term exposure to peak sound pressure levels above 190 dB are thought to cause physical injury to fish.⁹⁴ However, 155 dB may be sufficient to temporarily stun small fish.⁹⁵ Stunned fish, while not physically injured, are more

⁹² LSA Associates, Inc. (LSA), 2011. Updated Request for Preliminary Jurisdictional Delineation for the San Francisco International Airport's Proposed Runway Safety Area Project, City and County of San Francisco, California. Submitted to USACE San Francisco District, May 19, 2011. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

⁹³ U.S. Army Corps of Engineers (USACE), 2011. U.S. Army Corps of Engineers File #11-00273, August 3, 2011. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

⁹⁴ Hanson J., et al., 2003. Non-fishing Impacts to Essential Fish Habitat and Recommended Conservation Measures, National Marine Fisheries Service (NOAA Fisheries), Alaska Region, Northwest Region, Southwest Region. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

⁹⁵ *Ibid.*

susceptible to predation.⁹⁶ Pile driving could also result in short-term, localized increases in turbidity from suspension of bottom sediments into the water column. This would be a significant impact.

Implementation of **Mitigation Measure M-BI-1** would reduce the impact on special-status fish species to a less-than-significant level because the proposed avoidance and minimization measures are specifically intended to avoid adverse effects on special-status fish from pile driving. These mitigation measures were proposed and agreed to by the National Marine Fisheries Service (NMFS) at a meeting with SFO and FAA on February 8, 2011, and are based on the USACE's *Proposed Procedures for Permitting Projects that will Not Adversely Affect Selected Listed Species in California*.⁹⁷ This document was approved by the USFWS and NMFS on February 14, 2007, via programmatic consultation with the USACE.

Mitigation Measure M-BI-1 – Avoidance and Minimization Measures for Special-Status Fish

To avoid adverse impacts on federally and state-listed fish species, the project sponsor shall implement the following avoidance and minimization measures when conducting in-water work.

- All pile installation activities associated with the modifications to the trestle structures in San Francisco Bay that support the approach lighting systems shall occur between June 15 and November 30 to avoid time periods when federally and state-protected fish species have the greatest potential to occur in the vicinity of SFO.
- All piles shall consist of 20-inch-diameter timber that is chemically treated and wrapped with an impact-resistant, biologically inert material. ~~All pilings shall be driven with a vibratory hammer.~~
- Prior to construction, silt curtains shall be installed around the in-water work area to minimize potential sedimentation and turbidity resulting from pile driving. Silt curtains (also called turbidity barriers, turbidity curtains, or silt barriers) would be used to contain silt and sediments stirred by in-water or near-water construction work (e.g., pile driving, dredging) and typically consist of a “curtain” of geotextile fabric with plastic floats at the water surface and chains or other ballast at the bottom. The silt curtains shall extend from the water surface to the San Francisco Bay bottom substrate.
- All pile installation activities shall be conducted during low tides (if feasible due to access considerations) when water levels are at their lowest, to minimize potential noise-related impacts on fish and other marine organisms and turbidity.

⁹⁶ *Ibid.*

⁹⁷ United States Army Corps of Engineers, 2006. *Proposed Procedures for Permitting Projects that will Not Adversely Affect Selected Listed Species in California*. Programmatic consultation completed with NMFS and USFWS on February 14, 2007. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

- In areas of strong current, piles shall be driven when such currents are reduced (i.e., centered around slack current when no appreciable tidal current is present) to minimize the number of fish exposed to adverse levels of underwater sound.
- After all pile-driving is completed, the project sponsor shall prepare a post-construction compliance report for submittal to the San Francisco Planning Department, Environmental Planning Division, verifying that the above-described measures were successfully implemented.

Impact BI-2: The proposed project would directly impact 0.04 acre of tidal marsh habitat for California clapper rail and other special-status bird species. (Less than Significant with Mitigation)

As mentioned above, the tidal marsh southeast of the SFO airfield is known to support four special-status tidal marsh bird species: California clapper rail, salt marsh common yellowthroat, Alameda song sparrow, and Bryant's savannah sparrow. Relocation of the vehicle service road and existing sheet pile seawall southeast of Runway 1R would result in the permanent loss of 0.04 acre of tidal marsh habitat for these species (see Figure 26 on page 15149). Although the area to be filled is considered relatively marginal habitat for these species due to adjacent disturbance and low vegetation density, the conversion of a small portion (approximately 0.04 acre; 1,742 square feet) of existing tidal marsh to a paved service road would reduce the extent of available foraging, roosting, and nesting habitat for the local populations of these species. Implementation of **Mitigation Measure M-BI-2** would reduce this impact to a less-than-significant level because it involves the creation and preservation of in-kind tidal marsh habitat that is of greater habitat quality than the adversely impacted marsh, due to its location within a larger marsh ecosystem known to support California clapper rails and other special-status tidal marsh bird species.

In addition to potential direct impacts on tidal marsh habitat for California clapper rail and other special-status bird species, the proposed project could result in additional contributions of polluted stormwater runoff to the tidal marsh during and following construction, which could result in indirect adverse impacts to tidal marsh habitat and associated special-status species. Construction and operational activities have the potential to adversely affect water quality, which would be a significant impact. Implementation of **Mitigation Measures M-HY-1a, BMPs and Erosion Control Measures** on pages 1753 through 1786, and **M-HY-1b, Management of Dewatering Discharges** on pages 178 and 1797, would require implementation of erosion control measures, BMPs, and pollution prevention and dewatering management plans to reduce the potential for water quality impacts to receiving waters. These measures would ensure that discharges to receiving waters meet applicable water quality objectives set forth in the Water Quality Control Plan (Basin Plan) for the San Francisco Bay Region.⁹⁸ The proposed project would not introduce new operational activities, would be designed to protect water quality by maintaining existing grades to the extent practicable, and would

⁹⁸ San Francisco Bay Regional Water Quality Control Board (RWQCB), *Water Quality Control Plan (Basin Plan) for the San Francisco Bay Region*, 2010. Available online at: http://www.swrcb.ca.gov/rwqcb2/basin_planning.shtml. Accessed on May 21, 2011.

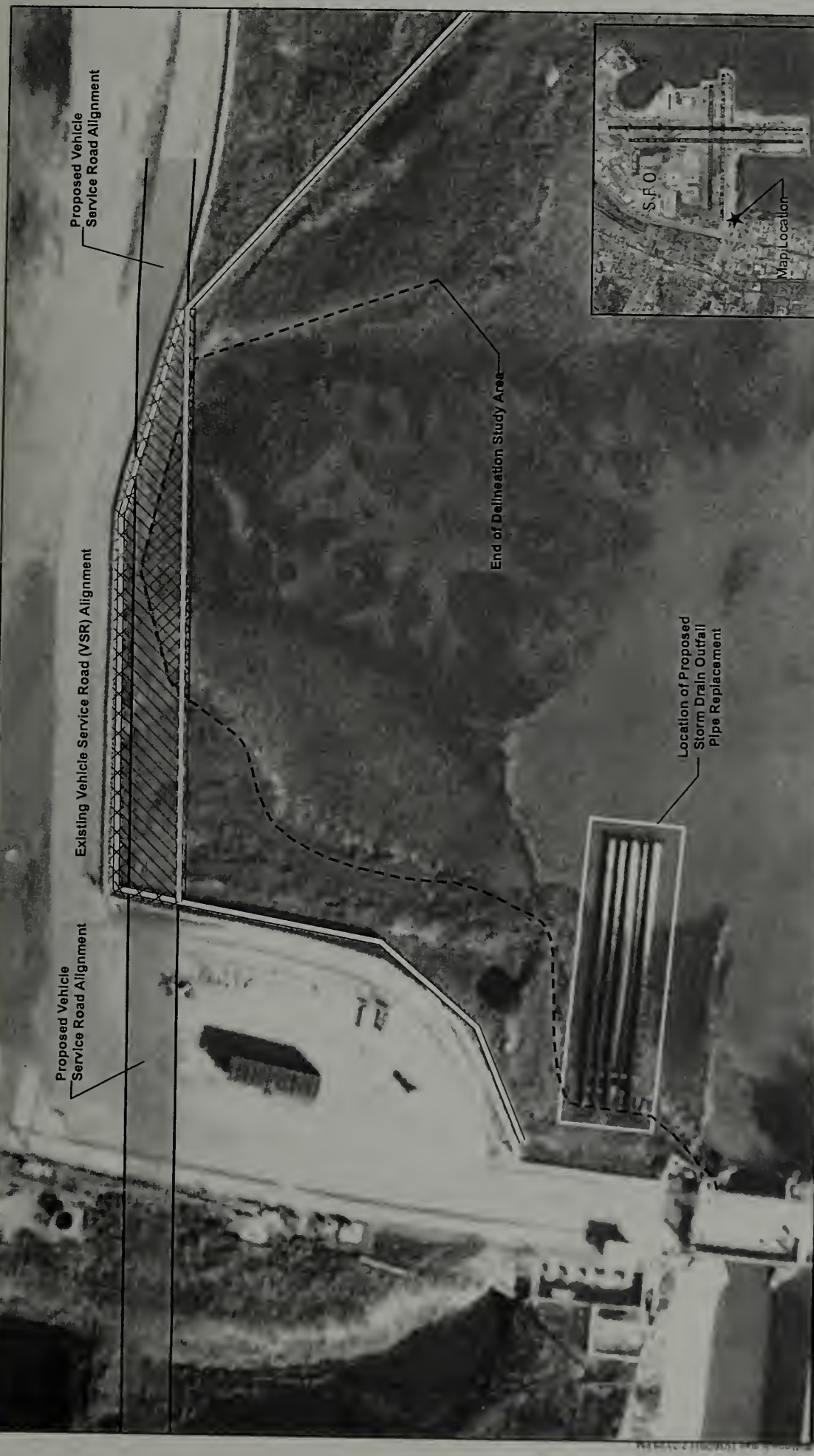
capture the first flush in accordance with federal, state, and local water quality requirements. Therefore, water quality impacts that have the potential to violate water quality standards or waste discharge requirements would be addressed through the implementation of the above mitigation measures, and would be less than significant with mitigation.

Mitigation Measure M-BI-2 – Compensatory Tidal Marsh Mitigation

To compensate for 0.04 acre of direct impacts on tidal marsh and associated habitat for California clapper rail and other special-status bird species because of the necessary vehicle service road relocation, SFO shall purchase (prior to construction) and apply 0.20 acre of agency-recognized (i.e., USACE, USFWS, and RWQCB) constructed tidal wetland mitigation habitat from the Deepwater Slough Island Wetland Mitigation Project in Redwood City as in-kind mitigation. This acreage represents a mitigation ratio of 5:1 (created tidal wetland acreage:adversely impacted acreage). Based on preliminary discussions between SFO and the regulatory agencies at meetings held on October 13, 2010 (Interagency Meeting with USACE, U.S. EPA, and RWQCB), January 20, 2011 (USFWS), and February 8, 2011 (CDFG and NMFS), this mitigation program was considered acceptable to offset impacts to California clapper rail and other special-status bird species. Deepwater Slough Island contains 30 acres of high-quality tidal salt marsh habitat that was created in 2000 by removing dredged spoils that had been deposited on the island from the 1930s through the mid-1960s. The new tidal wetland habitat at Deepwater Slough Island was specifically designed to compensate for impacts on California clapper rail as a result of construction of the Pacific Shores Center Project in Redwood City. The majority of the marsh consists of a mid-elevation marsh plain dominated by pickleweed, with approximately 10,500 linear feet of constructed tidal channels. The restored marsh contains suitable habitat for California clapper rail. The marsh is also contiguous with the extensive marshes of the Bair and Greco Island complexes, which are known to support populations of California clapper rail and other special-status bird species.^{99,100} Since completion of the restoration work in 2000, the marsh has matured into fully functional tidal marsh habitat, with dense pickleweed cover and newly developed tidal channels. As such, there shall be no temporal habitat loss from project implementation, because the mitigation area is currently providing fully established and functional tidal marsh habitat. The location of the Deepwater Slough Island Wetland Mitigation Project relative to the Airport and a map of this mitigation area are shown on Figures 27 and 28 on pages 153 and 155, respectively. The location of the Deepwater Slough project is consistent with prior agency decisions regarding offsite mitigation for SFO projects, because wetland impacts for the Master Plan Improvement Projects were addressed, in part, by a wetland creation effort at nearby Outer Bair Island.

⁹⁹ USFWS, *Draft Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California*, 2009. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

¹⁰⁰ Goals Project, *Baylands Ecosystem Species and Community Profiles: Life histories and environmental requirements of key plants, fish, and wildlife prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project*, 2000. Available online at: http://www.sfestuary.org/pdfs/species-community/Species_and_Community_Profiles%5BPart1%5D.pdf.



LEGEND

- Wetland Boundary (Limit of Tidal Marsh)
- Uplands to be Graded/Paved for VSR Realignment
- Permanent Impacts to Tidal Marsh Wetlands/ Clapper Rail Habitat from VSR Fill (0.04 acre)
- === Construct New Sheet-pile Seawall
- Existing Sheet-pile Seawall to Remain
- Existing Sheet-pile Seawall to be Removed

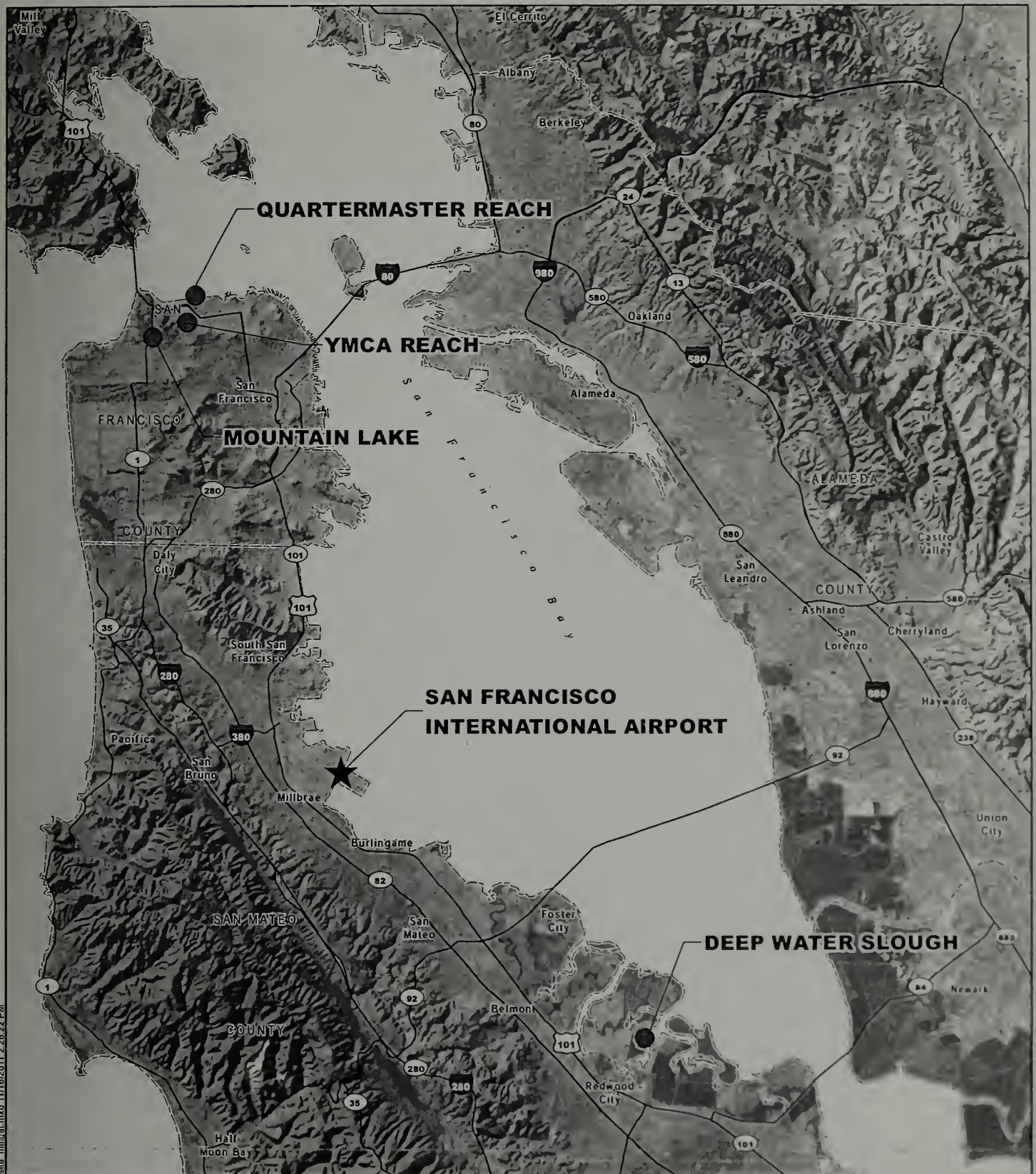
Sources:
Aerial Photo, USGS, 2009.



**PROPOSED VEHICLE SERVICE ROAD RELOCATION
AND OUTFALL REPLACEMENT WORK IMPACTS**

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

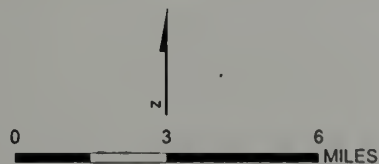
FIGURE 26



LEGEND

- Offsite Mitigation Projects
- County Boundary

Source:
LSA, Figure 1, Location of Potential
Off-site Mitigation Projects, 2011.



LOCATION OF OFFSITE MITIGATION PROJECTS

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

FIGURE 27

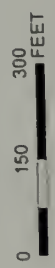


DEEPWATER SLOUGH ISLAND MITIGATION SITE

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

FIGURE 28

- LEGEND**
- Wetland Sample Point
 - Upland Sample Point
 - Tidal Waters
 - Ponds
 - Tidal Wetland Creation Area
 - Uplands



Source: Aerial Photo, ESPI Visual Exam, 2004; Wetlands Data, USA, June 2011

Impact BI-3: The proposed project could have a substantial adverse effect on California clapper rails and other special-status tidal marsh species during project construction if proper avoidance and minimization measures are not implemented. (Less than Significant with Mitigation)

The project could have temporary construction-related adverse impacts on California clapper rails and other special-status tidal marsh species through increased levels of disturbance from noise, light, and/or equipment vibrations associated with the vehicle service road relocation activities southeast of Runway 1R-19L, as well as the proposed outfall pipe replacement on the existing wooden trestle at the southern end of the marsh. The outfall pipe replacement would not involve any fill or work in the marsh, but would generate equipment noise during the removal of the existing pipes and placement of new wooden blocks and pipes. Such disturbances may disrupt normal behavioral patterns of breeding, foraging, sheltering, and dispersal, but are expected to be short in duration and limited in frequency. Construction work on the airfield, adjacent to the tidal marsh, is expected to render approximately 10 acres of suitable clapper rail habitat temporarily unusable due to disturbance effects, which would be a significant impact on clapper rails and other special-status tidal marsh species. The 10-acre estimate includes all tidal marsh habitat within 700 feet of the airfield. This 700-foot distance is based on the standard buffer distance considered by the USFWS to be adequate to protect breeding California clapper rails from construction-related effects. This distance was established by the USFWS for the South Bay Salt Pond Restoration Project.¹⁰¹

Implementation of **Mitigation Measure M-BI-3** would reduce this impact to a less-than-significant level since it involves specific avoidance and minimization measures that will be implemented during construction. These measures have been specifically designed to avoid disturbance of California clapper rails during both the breeding and non-breeding season. In addition, implementation of **Mitigation Measure M-BI-3** would avoid potential impacts on salt marsh common yellowthroats, Alameda song sparrows, and Bryant's savannah sparrows potentially nesting in or adjacent to the tidal marsh work areas, because the work would occur outside of the clapper rail breeding season, which also encompasses the breeding season for these other species.

Mitigation Measure M-BI-3 – Avoidance and Minimization Measures for California Clapper Rail and Other Special-Status Tidal Marsh Bird Species

To avoid adverse impacts on California clapper rails and other special-status tidal marsh bird species, the project sponsor shall implement the following avoidance and minimization measures:

- Any project activities for the vehicle service road relocation and outfall pipe replacement in the tidal marsh along the southeastern edge of Runway 1R-19L shall be conducted outside the California clapper rail breeding season (February 1 through August 31),

¹⁰¹ USFWS, *Formal Endangered Species Consultation on the Proposed South Bay Salt Pond Restoration Project Long-Term Plan and the Project-Level Phase I Actions, Alameda, Santa Clara, and San Mateo Counties, California (USACE File Numbers 07-27703S and 08-00103S)*. Letter to USACE, Regulatory Division, San Francisco, California. August 12, 2008. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

which also encompasses the breeding season for salt marsh common yellowthroat, Alameda song sparrow, and Bryant's savannah sparrow. Construction in this area shall be conducted from September 1 through October 31.

- A qualified biologist with previous California clapper rail experience shall monitor all vehicle service road relocation and outfall pipe replacement activities occurring in the tidal marsh. The biologist shall document compliance with the avoidance and minimization measures. The biologist shall have the authority to stop work if deemed necessary for any reason to protect California clapper rails and other special-status tidal marsh bird species. If the biologist has requested work stoppage because of a listed species, the CDFG Bay Delta Regional Office shall be notified within 24 hours.
- Prior to the initiation of construction of the vehicle service road relocation in the marsh, a qualified biologist familiar with California clapper rail biology shall meet with construction personnel to: (1) provide information on California clapper rail identification, habitat, and behavior; (2) review project-specific measures implemented to minimize effects on California clapper rails; and (3) summarize all required protection measures to be implemented and complied with to ensure that California clapper rails and their habitat are not impacted by construction activities. The training shall also include a brief description of the other special-status tidal marsh bird species.
- To prevent equipment and personnel from entering the marsh and potentially disturbing foraging or roosting California clapper rails and/or other special-status tidal marsh birds, the perimeter of the vehicle service road work area in the tidal marsh shall be staked and fenced with silt fencing. The fence shall be installed under the guidance of a qualified biological monitor.
- To avoid the loss of individual clapper rails, construction activities within or immediately adjacent to the tidal marsh for the vehicle service road relocation and outfall pipe replacement shall not occur within 2 hours before or after extreme high tides (6.5 feet or above, as measured at the Golden Gate Bridge) when the marsh plain is inundated. During extreme high tides, protective cover for clapper rails is limited and construction activities could prevent them from reaching available cover.
- Construction staging areas shall be located at least 100 feet from water bodies.
- If a California clapper rail or a California black rail is observed within the tidal marsh and adjacent habitat work areas, then construction work shall be stopped immediately by the qualified biologist, and the salt marsh harvest mouse or rail shall be allowed to leave the work area on its own volition. The CDFG shall be notified of any such occurrences. If

the mouse or rail does not leave the work area, then no work shall commence until the CDFG has made a determination on how to proceed with construction work activities.

- When daily construction activities for the vehicle service road and seawall relocations will entail vegetation removal, construction of the exclusion fencing, or work within 300 feet of tidal habitats, the qualified biologist shall, prior to the start of construction work each day, thoroughly inspect the tidal marsh work area and adjacent habitat areas to determine whether California clapper rails, California black rails or other special-status species are potentially present.
- After the vehicle service road relocation and outfall pipe replacement construction activities are completed, the project sponsor shall prepare a post-construction compliance report for submittal to San Francisco Planning Department, Environmental Planning Division, verifying that the above-described measures were successfully implemented.

Impact BI-4: The proposed project would not have a substantial adverse effect on special-status raptor species. (Less than Significant)

As mentioned above, six special-status raptor species have either been observed in the vicinity of SFO or could potentially occur in the project area, based on the presence of suitable foraging habitat: golden eagle, northern harrier, American peregrine falcon, burrowing owl, short-eared owl, and white-tailed kite. None of these species are expected to nest within or adjacent to the project area due to the lack of suitable nest sites (e.g., trees, shrubs and burrows) and ongoing disturbance from airfield maintenance and operations. As such, the project would result in less-than-significant impacts to these species.

Impact BI-5: The proposed project would permanently impact 0.04 acre of tidal marsh, a sensitive natural community. (Less than Significant with Mitigation)

As discussed above under Impact BI-2, the project would permanently impact 0.04 acre of tidal marsh, termed northern coastal salt marsh by Holland (1986)¹⁰² and identified as a sensitive natural community in the CNDDB.

This would be a significant impact on a sensitive natural community. Implementation of **Mitigation**

Measure BI-2 (see above, on pages 148-150 through 151) would reduce this impact to a less-than-significant level, because it involves the creation and preservation of in-kind tidal marsh habitat that is of greater habitat quality than the impacted marsh due to its location within a larger tidal marsh ecosystem known to support populations of California clapper rails and other special-status tidal marsh bird species. Furthermore, there will be no temporal loss of tidal marsh functions or values as a result of RSA project implementation, because the

¹⁰² Holland, R.F., 1986. *Preliminary Descriptions of Terrestrial Natural Vegetation of California*. California Department of Fish and Game, Non-Game Heritage Program. Sacramento, California. Available on line at: <http://www.cal-ipc.org/ip/inventory/pdf/HollandReport.pdf>.

mitigation area has been constructed well in advance of project implementation (i.e., in 2000) and now provides fully established and functional tidal marsh habitat.

Impact BI-6: The proposed project would result in direct impacts to wetlands and other waters of the United States and waters of the State. (Less than Significant with Mitigation)

The proposed SFO RSA program would avoid and minimize impacts to wetlands and other waters of the United States and waters of the State to the greatest extent practicable. Nonetheless, the project would result in unavoidable permanent impacts to 3.72 acres of jurisdictional wetlands and other waters of the United States and waters of the State. Impacts to wetlands and other waters are depicted in Figures 29 and 30, on pages 159 and 161 and 163, consisting of 0.73 acre of other waters (Bird Ball Ditch [0.36 acre] and Millbrae Highline Canal [0.37 acre]), 2.95 acres of seasonal wetland, which consists of South Oxidation Pond and the seasonal wetland area next to Runway 28R, and 0.04 acre of tidal marsh. Other than the small amount of fill in the tidal marsh, the majority of project impacts (3.68 acres) would affect constructed and maintained features that are part of the stormwater management system for the airfield and urban areas to the west. Project impacts on jurisdictional wetlands and other waters would be significant.

Implementation of **Mitigation Measures M-BI-2** (see above, on pages 148 through 150) and **M-BI-6** (see below) would reduce impacts on non-tidal jurisdictional waters to a less-than-significant level, because these measures involve the creation and preservation of offsite wetlands that have greater habitat value than those adversely impacted.

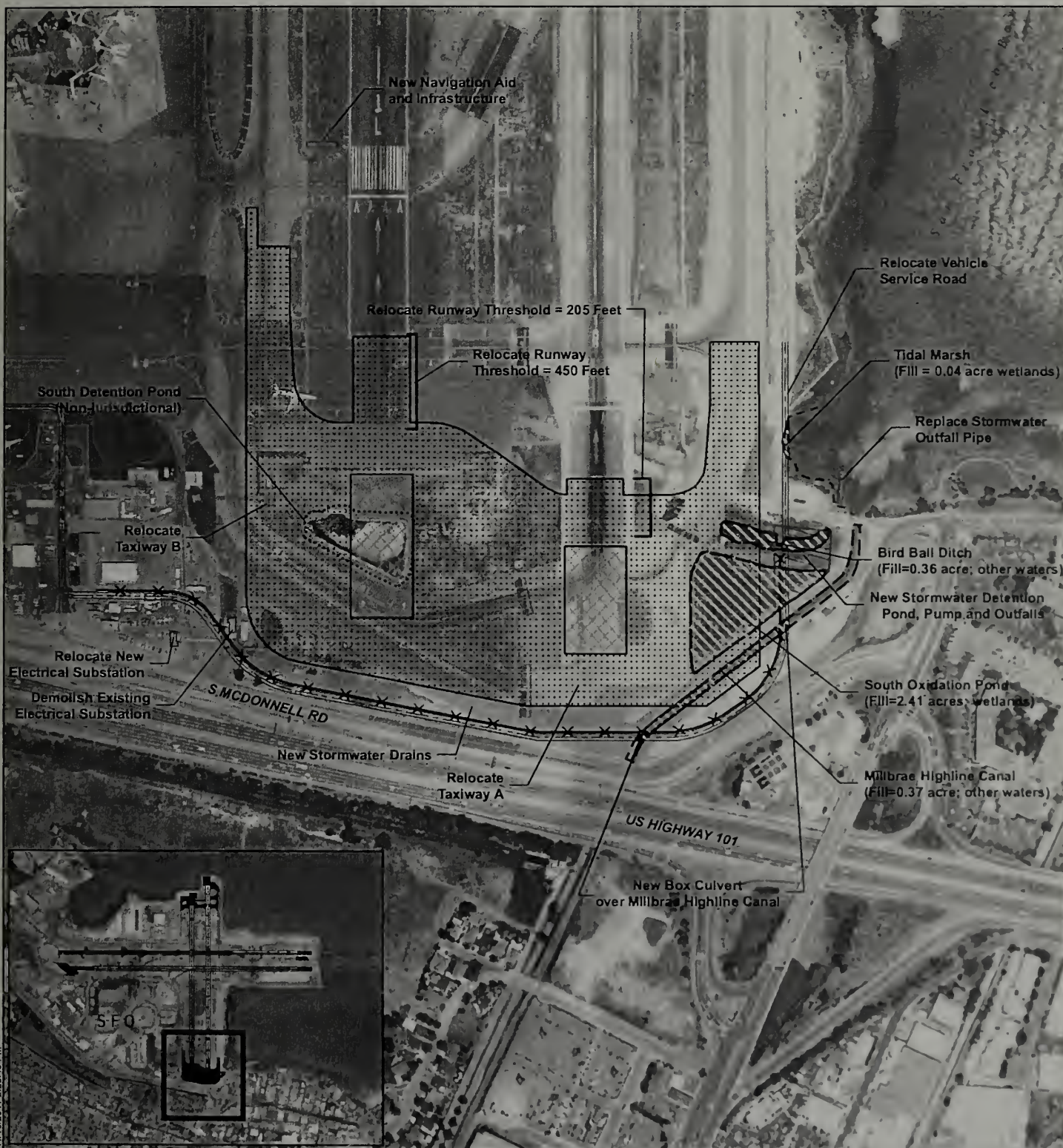
Mitigation Measure M-BI-6 – Compensatory Non-Tidal Wetland Mitigation

SFO shall compensate for the 3.68 acres of permanent impacts to non-tidal jurisdictional areas at a mitigation ratio of 2:1, which represents a target compensation acreage of 7.0 to 7.5 acres.

Specifically, SFO will participate in three wetland mitigation projects with the Presidio Trust to meet the target acreage, and is currently finalizing a Memorandum of Understanding between the two organizations. The three Presidio Trust wetland mitigation projects are part of a larger restoration program under the Presidio Vegetation Management Plan¹⁰³ that shall restore watersheds that feed into the Crissy Field Tidal Marsh and Mountain Lake (see Figure 31 on page 163). The overall mitigation program for the RSA Project shall be finalized by SFO and approved by the USACE, USFWS, and RWQCB prior to construction of the proposed project. In addition, the overall mitigation program shall be subject to as-needed modifications based on final agency approvals.

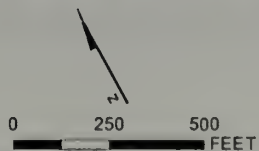
The Quartermaster Reach project shall be constructed between the upstream end of the Crissy Field Tidal Marsh and downstream end of the recently restored stream at Tennessee Hollow; the project shall consist of approximately 1.0 acre of open water/mudflat and 4.0 acres of low/brackish marsh

¹⁰³ Presidio Trust and National Park Service, December 2001. *Presidio of San Francisco Vegetation Management Plan and Environmental Assessment*. Available online at: <http://www.presidio.gov/trust/documents/environmentalplans/#10>.



LEGEND

- Non-jurisdictional Area
- Jurisdictional Area
- Jurisdictional Area to be Filled
- Tidal Marsh Jurisdictional Boundary
- Relocated Blast Fence
- Relocated Vehicle Service Road
- Engineered Materials Arresting System
- Extent of New Runway and Taxiway Improvements
- New Detention Pond

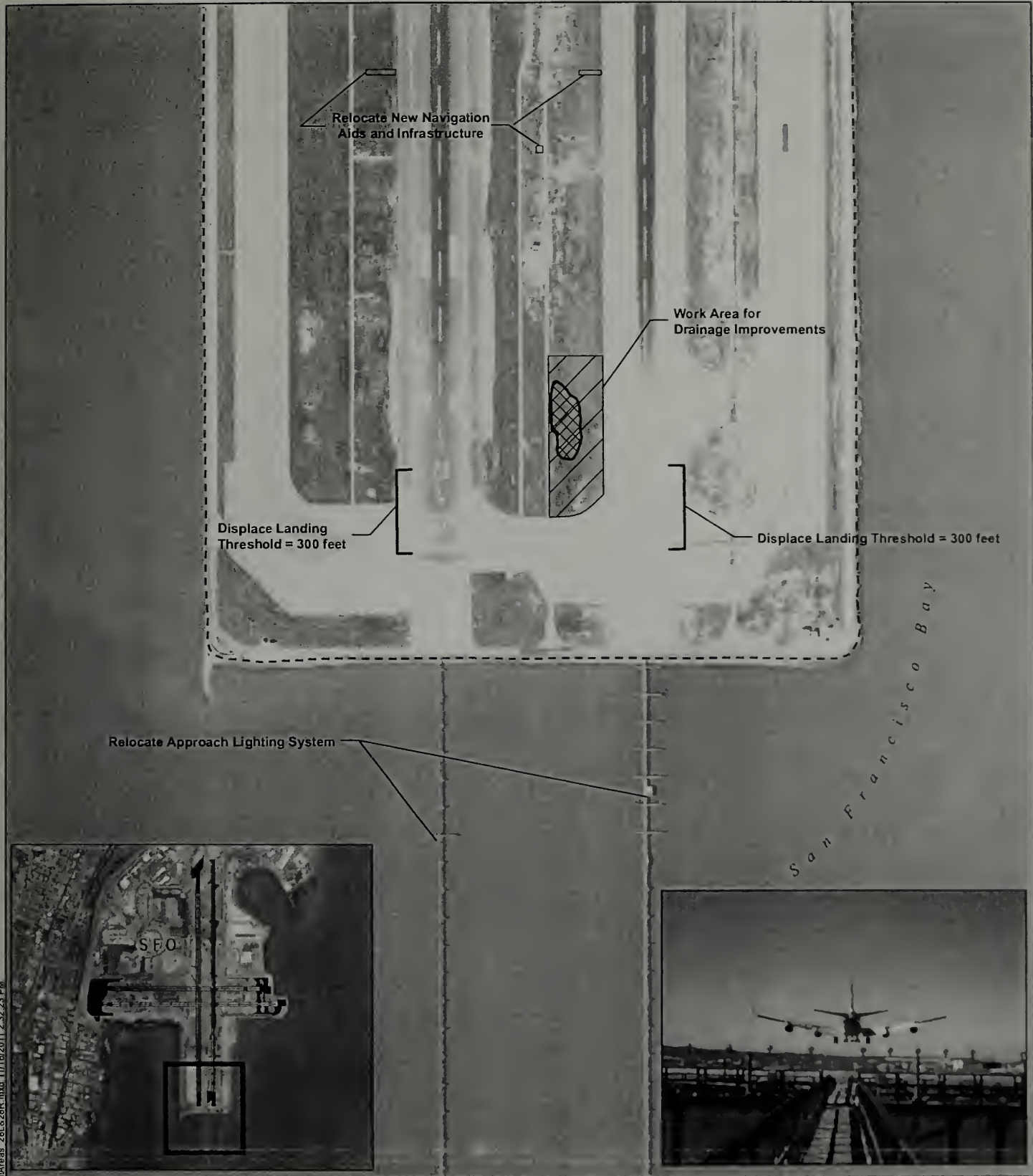


PROJECT IMPACTS ON JURISDICTIONAL AREAS RUNWAYS 1L AND 1R

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

Source:
Aerial Photo, SFO, June 2009

FIGURE 29



LEGEND

- High Tide Line
-  Seasonal Wetland/Ponding Area to be Filled to Meet Runway Safety Area Requirements

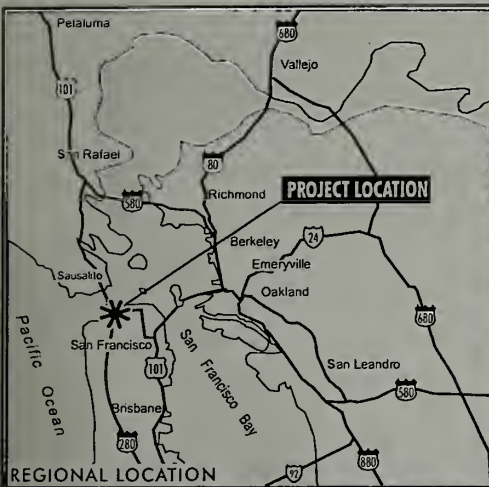
Source:
Aerial Photo, USGS, 2009; Inset Photo, D. Kessler,
Federal Aviation Administration, 2010.



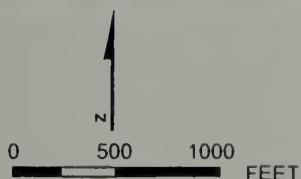
PROJECT IMPACTS ON JURISDICTIONAL AREAS RUNWAYS 28L AND 28R

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

FIGURE 30



Source:
LSA, FIGURE 10 OF 10, Locations of Proposed
Off-Site Mitigation Projects at the Presidio Trust
[Original Source: NGVD29, 5/31/2011], May 2011.



LOCATIONS OF PROPOSED PRESIDIO TRUST OFF-SITE MITIGATION PROJECTS

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

FIGURE 31

and dune swale, surrounded by coastal dune scrub and pedestrian trails. The YMCA Reach, located immediately upstream of the Tennessee Hollow restored stream, shall consist of approximately 2.0 acres of a braided network of freshwater marsh, riparian scrub, and willow woodland habitats. The East Arm of Mountain Lake project, which is part of a multi-phased restoration effort for Mountain Lake, shall result in the creation of approximately 0.5 acre of seasonal marsh and enhancement of 0.4 acre of existing freshwater marsh. The Presidio Trust staff shall be responsible for maintaining and monitoring the three wetland mitigation projects for a minimum of 5 years until the performance standards are satisfied. The Presidio Trust mitigation projects described above shall be constructed ~~in advance of or~~ concurrent with RSA project components that impact non-tidal jurisdictional areas.

Impact BI-7: The project would not interfere substantially with native resident or migratory fish and wildlife movement or with established native resident and migratory wildlife corridors. (Less than Significant)

The project would not interfere substantially with native resident fish and wildlife movement or with established wildlife corridors. The airfield does not contain habitat features essential to local and regional wildlife movement, such as linear patches of undisturbed habitat that links larger habitat patches. Most wildlife species occurring in the project vicinity have adapted to both natural and human-modified ecosystems. Species would continue to move along the San Francisco Bay shoreline and within the tidal marsh, southeast of the airfield, during project construction and after the project is completed. Therefore, the proposed project would have less-than-significant impacts on fish and wildlife movement and on native resident and migratory wildlife corridors.

Impact BI-8: The project would not conflict with any local policies or ordinances protecting biological resources. (No Impact)

The project would not conflict with any local policies or ordinances protecting biological resources. No trees protected under the San Francisco Urban Forestry Ordinance (Article 16 of San Francisco Public Works Code) are present in the project area. The project would have no impact on local policies or ordinances protecting biological resources.

Impact C-BI: The proposed project, combined with past, present, and reasonably foreseeable future projects in the area, would contribute to cumulative biological impacts. (Less than Significant with Mitigation)

The area analyzed for cumulative effects on biological resources was defined by evaluating the potential extent of effects of the proposed project, in conjunction with past, present and other reasonably foreseeable future projects in the context of the existing airport land use, habitat suitability/boundary considerations, and species sensitivities. The cumulative effects analysis described herein is based on the project area defined in

the Biological Assessment for the proposed project,¹⁰⁴ which encompasses a substantial portion of the airfield (excluding the terminal and ramp areas), as well as: (1) all tidal marsh, mudflat, and open water habitat within 700 feet of the edge of the airfield; and (2) all San Francisco Bay waters within 3,281 feet (1,000 meters) of the pile driving work areas at the approach end of Runways 28L, 28R, and 19L.

Many past and present projects, along with ongoing operations and maintenance activities in the project area, have resulted in a highly developed and disturbance-prone setting where biological resources are relatively limited. Selected examples of such projects include: SFO's North and West Fields Drainage Improvement Project, which involved the upgrade and expansion of an existing pump station and outfalls at Seaplane Harbor; the construction of Bay Front Park along the Millbrae/Burlingame shoreline southeast of Runway 1R-19L; dike repairs near the approach ends of Runways 19L and 19R and installation of a new seawall along the southeastern edge of Runway 1R; improvements to the wooden trestles supporting the approach light systems off the ends of Runways 28L, 28R, and 19L; and control of nonnative cordgrass along the margins of the airfield and vicinity by the Invasive Spartina Project, an ongoing collaborative regional effort among local, state, and federal organizations. These past and present projects may have contributed to the incremental loss of habitat for fish, wildlife, and plants, including special-status species and/or sensitive habitats (e.g., wetlands), thereby resulting in the potential for cumulatively significant impacts on biological resources in the project area.

Future projects in the project area that are reasonably certain to occur include the following: (1) SFO Replacement Airport Traffic Control Tower Project; and (2) Reclaimed Water System Project. Elements of these projects, which create noise, degrade water quality, or destroy habitat, could have effects on fish, wildlife, and plants, including sensitive habitats and/or special-status species when considered collectively. However, these projects will occur on previously developed locations at SFO and, unlike the proposed project, will not result in any significant impacts to biological resources.

Although none of the future projects described above will involve impacts to fish, wildlife, or plants, including special-status species or sensitive habitats, the proposed project, in combination with past and present projects, could result in potentially significant cumulative impacts to biological resources without the implementation of appropriate avoidance, minimization, and mitigation measures. Consequently, all impacts to biological resources resulting from the proposed SFO RSA Program would be fully mitigated through the implementation of **Mitigation Measures M-BI-1, M-BI-2, M-BI-3, and M-BI-6**, as described above, and **M-HY-1a, and M-HY-1b**, as described below. These measures incorporated into the project would reduce the proposed project's contribution to cumulative biological resource impacts to less-than-significant levels. In addition, a portion of the mitigation has been completed in advance of project impacts, thereby avoiding temporal loss of habitat functions and values from project implementation, and further reducing potential

¹⁰⁴ LSA, *Biological Assessment*, San Francisco International Airport Runway Safety Area Project, May 17, 2011. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

significant adverse impacts. Therefore, the proposed project would have a less-than-significant cumulative impact on biological resources.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
14. GEOLOGY, SOILS AND SEISMICITY					
Would the project:					
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	☐	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐	☐
iv) Earthquake induced landslides?	☐	☐	☒	☐	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐	☐
c) Be located on geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property?	☐	☐	☒	☐	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☐	☒
f) Change substantially the topography or any unique geologic or physical features of the site?	☐	☐	☒	☐	☐

Although the proposed project is located in a seismically active area, it is not located within an Alquist-Priolo Earthquake Fault Zone.¹⁰⁵ The nearest location of a fault zoned active in accordance with the State Geologist's standards is the San Andreas Fault in the Montara Mountain 7.5-minute topographic quadrangle, over 2 miles to the southwest of the project site. Therefore, the proposed project would result in no impact under Initial Study Checklist criterion E.14(a)(i). Septic tanks or alternative wastewater disposal systems are not elements of the proposed project; therefore, Initial Study Checklist criterion E.14(e) is not applicable.

¹⁰⁵ California Geological Survey (CGS), *Fault-Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zones Maps*, Special Publication 42, Interim Revision, 2007. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

Impact GE-1: The proposed project would not result in exposure of people and structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: strong seismic ground-shaking; seismic-related ground failure, including liquefaction; or earthquake-induced landslides. (Less than Significant)

The project area would be subject to ground shaking in the event of earthquakes on any of the San Francisco Bay Area faults. The typical stratigraphy under the project area consists of a sequence of man-made fills over younger Bay Mud, and additional Bay sediments overlying bedrock of the Franciscan assemblage. The variability in subsurface soil conditions is expected to lead to variability in the seismic response throughout the airfield. The proposed project would involve enhancing RSAs of the existing runways at SFO, and would not include constructing structures for human occupancy in the project area. If strong seismic ground shaking were to occur, the likelihood of loss, injury, or death would not increase as a result of the proposed project. If future earthquakes cause surficial cracking of the airport taxiways and runways, or failures of retained fills, the distressed areas would be patched or repaired to restore the facilities to their pre-earthquake condition. Therefore, impacts associated with strong seismic ground shaking would be less than significant.

If seismic-related ground failure were to occur, the likelihood of loss, injury, or death would not increase as a result of the proposed project, because structures for human occupancy would not be constructed. The relocated electrical substation building would not be built for human occupancy and would be built to applicable seismic standards. Liquefaction during earthquakes would likely occur beneath significant portions of the airfield, resulting in localized settlements and lateral displacement.¹⁰⁶ If future earthquakes cause surficial cracking of the airport taxiways and runways, the distressed areas would be patched or repaired to restore the facilities to their pre-earthquake condition. Therefore, impacts associated with seismic-related ground failure, including liquefaction, would be less than significant.

A steep slope is not located within or adjacent to the project site; therefore, no conventional landslide is expected. For this reason and the reasons stated above, impacts associated with seismic-related ground failure, including landslides, would be less than significant.

Impact GE-2: The proposed project would not result in substantial soil erosion or the loss of topsoil. (Less than Significant)

Land clearing activities for the proposed project would disturb the ground surface, decrease vegetative cover, and temporarily increase the potential for soil erosion. Construction of the project would comply with all applicable regulations for grading, drainage, and the construction of improvements. As discussed in Topic E.15, Hydrology and Water Quality, of this Initial Study, a SWPPP would be prepared and BMPs addressing soil loss and erosion would be implemented for the proposed project. Therefore, impacts related to soil erosion and loss of topsoil would be less than significant.

¹⁰⁶ URS, *San Francisco International Airport, Airfield Seismic Stabilization and Realignment, Phase A, Engineering Report*, July 19, 2006. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

Impact GE-3: The proposed project would not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse. (Less than Significant)

Near-surface materials are man-made fills consisting of silty and clayey sands, silts, and clays,¹⁰⁷ with stable geotechnical characteristics. Therefore, with the exception of earthquake-induced liquefaction resulting in less-than-significant impacts, discussed under Impact GE-1 above, no impacts associated with unstable geologic units or soil are expected as a result of the construction and operation of the proposed project.

Impact GE-4: The proposed project would not be located on expansive soil, creating substantial risks to life or property. (Less than Significant)

The soils that underlie SFO are classified by the U.S. Department of Agriculture as urban land orthents (very shallow soil; former soil has been removed), reclaimed complex, 0 to 2 percent slopes.¹⁰⁸ This classification has been applied to soils underlying SFO to account for the importing of fill that facilitated development of the Airport. This soil is typically covered by asphalt, concrete, buildings, and other structures, and does not have adverse expansive properties. Therefore, geological expansive soil impacts to the risk to life or property would be less than significant.

Impact GE-5: The proposed project would not substantially change topography or any unique geologic or physical features. (Less than Significant)

The proposed project would not involve substantial modification of topography. In addition, there is no unique geologic or physical feature on SFO property. Therefore, the construction and implementation of the proposed project would have less-than-significant impacts on the Airport's topography.

Impact C-GE: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the project area, would result in less-than-significant impacts related to geology and soils. (Less than Significant)

Geology impacts are generally site-specific; therefore, only on-airport projects are considered in the analysis of cumulative impacts to geology, soils, and seismicity. Cumulative development projects would be subject to applicable regulations for grading, drainage, and construction that are similar to those for the proposed project. These measures would reduce the geologic impacts of cumulative development projects to less-than-significant levels. Construction of the proposed project would comply with earthwork standards included in FAA Advisory

¹⁰⁷ *Ibid.*

¹⁰⁸ U.S. Department of Agriculture (USDA), *Soil Survey of San Mateo County, Eastern Part, and San Francisco County, California Soil Conservation Service*, May 1991. Available online at: <http://soildatamart.nrcs.usda.gov/Manuscripts/CA689/0/sanmateo.pdf>.

Circular (AC) 150/5370-10E, *Standards for Specifying Construction of Airports*,¹⁰⁹ which addresses excavation, grading, compaction, drainage excavation, preparation of subgrade, and similar items related to soil stability. Hence, the proposed project would have less-than-significant cumulative impacts on geology or soils.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact	Not Applicable
15. HYDROLOGY AND WATER QUALITY					
Would the project:					
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☒	☐	☐	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☒	☐	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other authoritative flood hazard delineation map?	☐	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☒	☐	☐
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐	☐
j) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐	☐

¹⁰⁹ FAA, FAA Advisory Circular 150/5370-10E, *Standards for Specifying Construction of Airports*, Issued September 30, 2009. Available online at: http://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/998888. Accessed on May 21, 2011.

The proposed project does not include the construction of housing, nor would it be located in a residential area. Therefore, criterion 15g is not applicable.

Impact HY-1: The proposed project would potentially violate water quality standards or waste discharge requirements. (Less than Significant with Mitigation)

The San Francisco Bay RWQCB reviews actions at SFO that may affect receiving waters, and administers the NPDES program, pursuant to the Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne Act) and the federal CWA (33 U.S. Code § 1257 et seq.). The NPDES program was developed by the U.S. EPA in accordance with Section 303 of the CWA. The objective of the federal CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Specific sections of the CWA control discharge of pollutants and wastes into marine and aquatic environments. The CWA requires states to set standards to protect water quality. In California, the NPDES program is administered by the SWRCB, with implementation and enforcement by the RWQCBs. The Porter-Cologne Act established the SWRCB and nine RWQCBs as the primary state agencies with regulatory authority over water quality and surface water rights allocation. Requirements of the Porter-Cologne Act are implemented by the SWRCB at the state level and the RWQCBs at the regional level.

Stormwater discharges at SFO are subject to water quality requirements established by the CWA and are currently regulated by a permit [RWQCB Order Number R2-2007-0060 (NPDES Permit Number CA0028070)] issued by the San Francisco Bay RWQCB for wastewater associated with the MLTP-IWP. SFO has developed a SWPPP that conforms to the requirements in the Airport's NPDES permit and provisions outlined in SWRCB Order Number 97-03-DWQ for stormwater discharges associated with industrial activities (General Industrial Permit). BMPs for airport operations, drainage, and spill response have been developed and are being implemented under this program. The SWPPP contains applicable rules and compliance requirements for protection of surface water and groundwater.¹¹⁰

In addition, all projects involving construction activities that disturb 1 acre or more of land are required to apply for coverage under the SWRCB's NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, 2009-0009-DWQ as amended by 2010-0014-DWQ (General Construction Permit). To obtain coverage under the permit, SFO would submit Permit Registration Documents that would include a Notice of Intent to comply with the general construction permit, a risk assessment to address project sediment risk and receiving water (watercourse such as a stream or ocean into which stormwater is discharged) risk, post-construction hydrology calculations, a site map, and a project-specific SWPPP for construction activities. BMPs that would be implemented during construction must be identified in the SWPPP. Additionally, post-construction management measures must be prepared and a

¹¹⁰ SFO, *Storm Water Pollution Prevention Plan for Industrial Activities*, September 2010. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, as part of Case File No. 201.0755E.

long-term maintenance plan must be implemented at the completion of construction (for projects constructed on or after September 2, 2012, this is a mandatory requirement).

Project construction activities would include clearing, grading, paving, excavating, placing of fill, relocating utilities, relocating approach lighting systems on existing and new trestles in San Francisco Bay, and relocating a vehicle service road and seawall. Construction activities have the potential to cause erosion, sedimentation, and increased turbidity in water bodies. Fluids, such as fuel or oils, leaking from vehicles and equipment used during construction have the potential to decrease water quality. Construction activities would adhere to guidelines set forth by the SFO SWPPP¹¹¹ and would comply with earthwork, mulching, and drainage standards included in FAA AC 150/5370-10E, *Standards for Specifying Construction of Airports*¹¹² to minimize erosion and sedimentation. As discussed in Topic E.1, Land Use, under Impact LU-2 of this Initial Study, an amendment to an existing BCDC permit issued to the Airport would be required for San Francisco Bay fill associated with the proposed project.

To bring the existing RSAs into compliance with FAA standards, the proposed project would include new impervious surfaces and removal of existing impervious surfaces at the ends of the runways, and 20 new pilings to support the relocated approach lighting systems. Stormwater would continue to discharge through the stormwater drainage system to the MLTP-IWP or to existing outfalls to the San Francisco Bay, in accordance with federal and state requirements and the procedures outlined in the SFO SWPPP. No additional operational activities would be implemented as part of the proposed project that would result in a significant effect on stormwater discharge or water quality.

The proposed project would also include the relocation of an electrical substation, the placement of fill in 0.04 acre of tidal marsh for a relocated vehicle service road and seawall, and the placement of fill in the South Detention Basin at the southern ends of Runway 1R-19L and 1L-19R. South Detention Basin would be replaced with a concrete-lined underground detention basin and designed to capture the stormwater first flush in accordance with federal, state, and local requirements. New stormwater drains, pumps, and outfalls would also be constructed near and connected to the relocated detention basin that would capture runoff that currently drains to South Detention Basin, runoff due to increases in impervious surfaces, and runoff from the relocated vehicle service road. Existing drainage patterns would be maintained to the extent practicable.

Discharges to receiving waters must meet applicable water quality objectives set forth in the Water Quality Control Plan (Basin Plan) for the San Francisco Bay Region. The Basin Plan designates beneficial uses for specific surface water and groundwater resources, establishes water quality objectives to protect those uses, and sets forth policies to guide the implementation of programs to attain the objectives. The proposed project would not introduce new operational activities, and would be designed to protect water quality by maintaining existing grades to the extent practicable, and capturing the first flush of runoff water in accordance with

¹¹¹ *Ibid.*

¹¹² *Supra* note 109.

federal, state, and local water quality requirements. Construction activities have the potential to violate water quality standards or waste discharge requirements and adversely affect water quality, which would be a significant impact. Implementation of **Mitigation Measures M-HY-1a, BMPs and Erosion Control Measures**, and **M-HY-1b, Management of Dewatering Discharges**, described below, would require implementation of erosion control measures, BMPs, and pollution prevention and dewatering management plans to reduce the potential for water quality impacts from construction discharges to a less-than-significant level.

Mitigation Measure M-HY-1a – BMPs and Erosion Control Measures

Erosion control measures and BMPs shall be implemented to minimize the effects of erosion, sedimentation, and leakage of vehicle and equipment fluids, and shall be developed further in the project-specific SWPPP prepared by the contractor in accordance with the requirements of the General Construction Permit. The BMPs described in the SWPPP shall require review and approval by the RWQCB. BMPs implemented as part of the proposed project may include, but are not limited to, the measures described below. The measures may be altered, supplemented, or deleted during the RWQCB review process. Implementation of these measures shall aid in meeting the relevant water quality objectives included in the Basin Plan (e.g., maintain beneficial uses of receiving waters; not create floating material or visible film at the water surface; and prevent toxic substances in concentrations that shall adversely affect aquatic life in receiving waters).

Scheduling

- Schedule construction during the dry season to the extent practicable to minimize ground disturbance during the wet season.
- Stabilize all disturbed soils as soon as possible following the completion of soil-disturbing work.
- Install erosion and sediment control BMPs prior to the commencement of ground-disturbing activities.

Erosion and Sedimentation

- Install silt fences, fiber rolls, or similar suitable measures at the perimeters of the disturbed areas, as well as down-slope of all exposed soil areas, and in other locations at the project site necessary to prevent offsite sedimentation.

- Install temporary slope breakers during the wet season on slopes greater than 5 percent where the base of the slope is less than 50 feet from a water body, wetland, or road crossing at spacing intervals required by the RWQCB.
- Use filter fabric, gravel bags, or other appropriate measures to prevent sediment or paving materials from entering storm drain inlets.
- Detain and treat water produced by construction site dewatering using sedimentation basins, sediment traps (when water is flowing and there is sediment), or other measures to ensure that discharges to receiving waters meet applicable water quality objectives.

Tracking Controls

- Grade and stabilize construction site entrances and exits to prevent runoff from the site and to prevent erosion.
- Install a gravel pad, wash facility, or similar device at site access points, as necessary, to prevent track-out when vehicles exit the site. Remove any soil or sediment tracked off paved roads during construction by employing street sweeping.
- Monitor construction activity in San Francisco Bay and identify periods when localized increases in turbidity may occur.
- Properly dispose of raw cement; concrete or concrete washings; asphalt, paint, or other coatings; oil or other petroleum products; and other hazardous substances to prevent them from contaminating soil, entering watercourses, or harming aquatic life. Prevent visible oil, grease, or foam from forming on soil or water surfaces.
- Install a silt curtain, turbidity curtain, or other sedimentation control measures to trap sediment and prevent sediment and silt load increases in water bodies during construction in San Francisco Bay.
- Do not operate construction vehicles and equipment in flowing water.

Non-Stormwater Control

- Check construction vehicles and equipment daily at startup for leaks, and repair any leaks immediately. Clean construction vehicles and equipment regularly to prevent excessive buildup of oil and grease.

- Conduct refueling and servicing of vehicles and equipment off site or employ other measures to prevent run-on and runoff and to contain spills.

Waste Management and Hazardous Materials Pollution Control

- Prepare a waste management plan to address and provide training procedures for the proper storage, handling, and disposal of fuel, oils, and other wastes from project construction activities to prevent the offsite discharge of leaks or spills. Remove wastes regularly and provide an adequate number of waste containers with lids or covers to keep rain out of the containers and to prevent trash and debris from being blown away during high winds. Locate waste collection areas close to construction entrances and away from roadway and San Francisco Bay. Inspect dumpsters and other waste and debris containers regularly for leaks. Remove and properly dispose of any hazardous materials and liquid wastes placed in these containers.
- Designate and identify location of sanitary facilities (e.g., portable toilets) at a minimum of 200 feet from the San Francisco Bay shoreline. Ensure the containment of sanitation facilities to prevent discharges of pollutants to the storm drainage system or receiving water. Maintain sanitation facilities regularly.
- Maintain spill containment and cleanup equipment onsite. Label and dispose of hazardous wastes properly.

BMP Inspection, Maintenance, and Repair

- Inspect all BMPs on a regular basis to confirm proper installation and function.
- Inspect all stormwater BMPs daily during storms.
- Inspect sediment basins, sediment traps, and other detention and treatment facilities regularly throughout the construction period.
- Provide sufficient devices and materials (e.g., silt fence, fiber rolls, or erosion blankets) throughout project construction to enable immediate repair or replacement of failed BMPs.

Permitting, Monitoring, and Reporting

- Obtain and comply with the RWQCB Section 401 Water Quality Certification.

- Provide the required documentation for SWPPP inspections, maintenance, and repair requirements.
- Maintain written records of inspections, spills, BMP-related maintenance activities, corrective actions, and visual observations of any offsite discharge of sediment or other pollutants, as required by the RWQCB.
- Monitor water quality to assess the effectiveness of control measures.
- Notify the RWQCB and other agencies as required (e.g., CDFG and USFWS) if the criteria for turbidity, oil/grease, or foam are exceeded, and undertake corrective actions.
- Immediately notify the RWQCB and other agencies as required (e.g., CDFG and USFWS) of any spill of petroleum products or other organic or earthen materials, and undertake corrective action.

Post-Construction BMPs

- Revegetate all temporarily disturbed areas as required after construction activities are completed.
- Remove construction debris and trash from the project area and staging areas upon project completion.
- Remove temporary BMPs in phases as necessary to ensure stabilization of the site.
- Maintain post-construction site conditions to avoid any unintended drainage channels, erosion, or areas of sedimentation.
- Correct post-construction site conditions as necessary to comply with the SWPPP and any other pertinent RWQCB requirements.

Mitigation Measure M-HY-1b – Management of Dewatering Discharges

To address potential impacts that dewatering discharges during the construction period may have on the water quality of receiving water bodies, and to comply with the NPDES requirements, the contractor shall prepare a project-specific dewatering plan. The discharges shall be handled in accordance with the General Construction Permit. A management plan for dewatering activities shall be prepared to comply with the NPDES requirements. The discharges shall be handled in accordance with the General Construction Permit and the SFO SWPPP, and shall be developed and approved

prior to excavation. The dewatering management plan shall specify methods for water collection, transport, treatment, and discharge of all water produced by construction site dewatering. Applicable BMPs shall be identified in the dewatering management plan to ensure that discharges to receiving waters meet applicable water quality objectives.

Water produced by dewatering shall be assessed by visual and olfactory examination, measured for volatile organic compounds (VOCs), and/or sampled and analyzed for pollutants of concern, as necessary in accordance with the SWPPP. If no contamination is observed or measured, water shall be discharged to the MLTP-IWP system or to San Francisco Bay through the nearest storm drain inlet. If contamination is observed or detected, and contaminant concentrations are less than influent requirements established by SFO for MLTP-IWP, water shall be discharged to the industrial waste system. If the contaminant concentrations exceed established influent levels, the water shall be treated. Treated water that meets the established influent requirements for the MLTP-IWP or storm water influent concentrations may be discharged to the appropriate system.

Impact HY-2: The proposed project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. (Less than Significant with Mitigation)

Implementation of the proposed project would not require the use of groundwater resources, and operational activities are not expected to change.

Although impervious surfaces may be increased, the additional impervious surfaces would not interfere substantially with groundwater recharge. Groundwater at SFO is influenced by seasonal precipitation and tidal fluctuation, which may cause the depth to groundwater to vary by a few feet. Geotechnical studies have collected boring data indicating that the depth to groundwater ranges from 0 to 17 feet, with most borings showing depth to groundwater between 3 and 10 feet bgs.¹¹³

During construction, subsurface excavation, clearing, and grading activities could intercept shallow groundwater. Dewatering could be necessary in locations where excavations intercept groundwater. Other excavation depths, such as for electrical line trenching, would be approximately 2 to 4 feet bgs.

Excavation depths for the seawall, electrical substation, and pump station would range from 10 to 25 feet bgs.¹¹⁴ Although construction may require dewatering, groundwater would not be substantially depleted, because dewatering would only occur temporarily during construction, and would not remove more water than would be necessary to perform the project construction activities. In addition, the use of groundwater

¹¹³ Supra note 1064.

¹¹⁴ SFO, *Excavation Depths Section 106 Consultation*, Email Communication, Audrey Park, SFO, to Christopher Wolf, URS Corporation, December 14, 2010. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, as part of Case File No. 201.0755E.

resources would not be required during construction. A management plan for dewatering would be implemented, as described under **Mitigation Measure M-HY-1b** above.

Therefore, in light of the reasons above, impacts to groundwater supplies and groundwater recharge from construction and implementation of the proposed project would be less than significant with mitigation incorporated.

Impact HY-3: The proposed project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site. (Less than Significant)

Replacement of the runways with new impervious surfaces and regrading are part of the proposed project, and would have the potential to alter existing drainage patterns. New impervious surfaces would cover approximately 3 percent of the airport property. The new pavement and other project site areas would be graded so that runoff would continue to be directed to the existing drainage basins or catch basins where possible. The new grades would be designed to match existing grades in order to maintain existing drainage patterns to the extent practicable. Maintaining existing grades would minimize the potential for increases in runoff velocity and therefore erosion or siltation.

Modifications to the existing storm drainage system associated with replacing South Detention Basin and South Oxidation Pond with a single underground detention basin have the potential to alter the existing drainage patterns at the site and result in erosion or siltation. The drainage area that currently discharges to South Detention Basin would be directed to the new underground detention basin via sheet flow or new catch basins that would be located in the vicinity of South Detention Basin. The disturbed area at the southern ends of Runways 1R-19L and 1L-19R would be graded so that runoff would be directed to the catch basins or new detention basin. Slopes similar to existing conditions would be maintained to minimize the potential for erosion.

At the relocated seawall and vehicle service road, drainage patterns would be altered. The slopes would be minimized where possible to prevent erosion and siltation. However, where steeper slopes are required, BMPs such as straw wattles would be used to slow runoff velocities and minimize the potential for erosion during construction. Slopes that remain after construction would be vegetated to minimize the potential for erosion.

During construction, subsurface excavation, clearing, and grading activities could expose soils to erosion and result in sediment discharge to onsite drainages. Impacts resulting from construction activities would be temporary. BMPs, including erosion control measures such as straw wattles, sediment traps, and silt fences, would be implemented during construction in accordance with federal, state, and local requirements to minimize the potential for erosion or siltation.

Because the proposed project would be designed to minimize slopes, runoff would be directed to the existing drainage facilities, where feasible, and BMPs and erosion control measures would be implemented during construction, impacts to the existing drainage pattern would not result in substantial erosion or siltation on or off site. Hence, project impacts on existing drainage patterns and soil erosion and siltation would be less than significant.

Impact HY-4: The proposed project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. (Less than Significant)

Replacement of the runways with new impervious surfaces and regrading are part of the proposed project, and would have the potential to alter existing drainage patterns. New impervious surfaces would cover approximately 3 percent of airport property, and the new pavement and other project site areas would be graded so that runoff would continue to be directed to the same drainage basins or catch basins, where possible. The grading associated with the proposed project would be designed to maintain existing drainage patterns to the extent practicable.

South Detention Basin, at the southern ends of Runways 1R-19L and 1L-19R, would be relocated as part of the proposed project. Stormwater that would have drained to or been stored in this detention basin would be directed to a new underground detention basin southeast of the existing location, shown on Figure 10 on page 25. New catch basins south of the runways would also be installed to capture stormwater in the area. The new detention basin would be sized to accommodate the capacity of the existing South Detention Basin, existing South Oxidation Pond, and any additional runoff that would be generated by the increased impervious surface areas. Existing grades would be retained to the extent practicable to minimize increases to the existing runoff rate. The storm drainage improvements would be designed to maintain drainage patterns similar to the existing patterns, and would be sized to capture runoff so that the rate or amount of stormwater runoff would not be substantially increased so as to cause flooding due to the proposed project. Therefore, impacts to the rate or amount of surface runoff that would result in flooding on or off site would be less than significant.

Impact HY-5: The proposed project would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. (Less than Significant)

Increased impervious surfaces have the potential to increase the amount of runoff. The proposed project would introduce approximately 23 acres of new impervious surface within the approximately 2,100-acre airport property. Currently, stormwater runoff is conveyed to the four existing detention basins or outfalls by sheet flow, and through underground piping and culverts. The existing stormwater drainage system is designed to drain runoff either to the MLTP-IWP or San Francisco Bay. The proposed 23-acre increase in

impervious area is small compared to the size of the approximately 2,100-acre airport property (approximately 1 percent), and over half of the new impervious surface would be located in the South Detention Basin drainage area. The stormwater drainage system in the southern portion of the Airport would have a new 1.6-million-gallon underground detention basin that would handle increased flows and accommodate the first flush from the drainage area after implementation of the proposed project. An increase of 7 acres of impervious surface in the West Field Detention Basin drainage area would be small (approximately 1 percent) compared to the size of the 659-acre drainage area; therefore, any resulting project increases in runoff would not exceed the storm drainage system capacity.

Approximately 6 acres of increased impervious surfaces would be located in drainage areas that discharge to existing outfalls. Pumps at the outfalls control discharge to San Francisco Bay. The relatively small increase in impervious surfaces would not substantially increase the amount of runoff handled by these pumps.

The contractor would provide temporary drainage facilities to handle stormwater runoff and construction-related discharge and implement BMPs included in the SFO SWPPP such as fiber rolls or silt fences to minimize the potential for erosion or siltation and protect runoff water quality. Therefore, the proposed project would not exceed the capacity of existing or planned stormwater drainage systems; hence, project impacts resulting in polluted runoff would be less than significant.

Operational activities would remain the same as existing activities, and no other increase in runoff would result from project implementation. Because the proposed project would not introduce new operational activities, no new sources of pollutants in runoff water would occur. Therefore, the proposed project's impacts to runoff water would be less than significant.

Impact HY-6: The proposed project would not otherwise substantially degrade water quality. (Less than Significant)

Other than the less-than-significant water quality effects, such as increases in impervious areas, erosion, sedimentation, and potential hazardous spills and the associated **Mitigation Measures M-HY-1a** and **M-HY-1b**, discussed above, the proposed project would not substantially degrade water quality. Therefore, the proposed project would have less-than-significant impacts on water quality.

Impact HY-7: The proposed project would not place within a 100-year flood hazard area structures that would impede or redirect flood flows. (Less than Significant)

The project site is within a 100-year floodplain. Project construction would involve grading, new paving, and installation of EMAS. The SFO RSA Program improvements would be constructed at approximately the same elevation as the existing runway elevations, which range from approximately 5.4 to 13.1 feet above mean sea level. An approximately 1,000-square-foot electrical substation would be constructed west of the southern end of Runway 1L-19R. In addition, an approximately 1,900-square-foot pump station would be

constructed east of the southern end of Runway 1R-19L. Because the structures are small relative to the size of the floodplain, they would not impede or redirect flood flows. No other substantial above-grade structures would be constructed within the 100-year floodplain; therefore, the proposed project is not expected to impede or redirect flood flows. The proposed project would comply with federal, state, and local floodplain management regulations, and therefore minimize impacts to the floodplain. Construction activities would be temporary and would not impact 100-year flood levels. The proposed project would have a less-than-significant impact on flood flows.

Impact HY-8: The proposed project would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam and sea level rise. (Less than Significant)

The project site is not located in an area susceptible to flooding as a result of the failure of a dam or levee; therefore people or structures would not be exposed to a significant risk of loss, injury, or death as a result of implementation of the proposed project and the failure of such structures.

Because SFO borders San Francisco Bay, sea level rise has the potential to impact future airport operations and development. Sea level rise in San Francisco Bay is currently estimated at an average rate of 0.08 inch per year at the San Francisco tide station.¹¹⁵ Sea level rise occurs primarily as a result of thermal expansion of water due to ocean warming and the addition of water due to land-based ice melt.¹¹⁶ BCDC has completed a vulnerability assessment of the Bay Area based on sea level rise scenarios developed by the California Climate Action Team.¹¹⁷ Estimates of 16 inches of sea level rise by the year 2050 and 55 inches of sea level rise by the year 2100 were used by the BCDC to identify shoreline areas that may be vulnerable to inundation from rising sea levels if unmitigated by shoreline protection measures. SFO has constructed improvements such as a partial seawall to protect the existing runways and airfield operations and address the potential for flooding as a result of sea level rise and storm events through 2050. As new studies regarding sea level rise become available, SFO will evaluate its flood protection and drainage facilities and upgrade flood protection measures, as required.¹¹⁸

The proposed project includes constructing improvements to the RSAs of existing runways at SFO and relocating existing related components such as a vehicle service road, seawall, electrical substation building, drainage installations and a pump station, taxiway lights and signage, and navigational aids. These improvements are already protected from potential sea level rises that BCDC estimates would occur by 2050.

¹¹⁵ National Oceanic and Atmospheric Administration (NOAA), NOAA Tides and Currents. *Mean Sea Level Trend 0414290 San Francisco, California 1897-2006*. Available online at: http://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?stnid=9414290. Accessed June 2, 2011.

¹¹⁶ BCDC, *Living with a Rising Bay: Vulnerability and Adaption in San Francisco Bay and on its Shoreline*, Draft Staff Report, April 7, 2009. Available online at: http://www.bcdc.ca.gov/proposed_bay_plan/bp_1-08_cc_draft.pdf. Accessed June 2, 2011

¹¹⁷ *Ibid.*

¹¹⁸ SFO, Letter from John L. Martin, Airport Director (SFO) to Will Travis, Executive Director (BCDC): *Climate Change and Sea-Level Rise in San Francisco Bay*. July 20, 2009.

The proposed project would not change existing surface elevations. Therefore, the existing flood protection improvements at SFO would continue to protect airport operations after construction of the proposed project.

Because SFO has already constructed improvements to protect against flooding, including sea level rise projected for 2050, and the proposed project would not alter existing flooding and sea level rise protection features, impacts associated with increased exposure of people or structures to significant risk or loss, injury, or death involving sea level rise would be less than significant.

Impact HY-9: The proposed project would not expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow. (Less than Significant)

As noted in the San Francisco General Plan, Community Safety Element, seiches are not historically common natural hazards in the San Francisco area.¹¹⁹ Additionally, damaging tsunamis are not common along the California coast, although they can be associated with very large, distant earthquakes. (The recent March 11, 2011 earthquake off the northeast coast of Honshu, Japan, resulted in a deadly tsunami, with lesser repercussions along coastal California.) Analysis conducted by the U.S. Geological Survey¹²⁰ indicates that a 20-foot-high tsunami experienced at the Golden Gate would result in inundations of the bayward portions of the project area.

The proposed project would involve enhancing the RSAs of the existing runways and would not include constructing structures for human occupancy on the project site or in the project area. Because the Airport is located on relatively flat terrain, the proposed project would not increase mudslide hazard.

The proposed project would not introduce new operational activities or involve construction of structures for human occupancy at SFO. As such, no increase in population resulting from the project is anticipated at SFO. Therefore, the proposed project would not increase exposure to a significant risk of loss, injury, or death from a seiche, tsunami, or mudflow. Structures would not be exposed to a significantly increased risk of loss, because the construction of new buildings/structures associated with the proposed project is primarily limited to the replacements of one small electrical substation and a small pump station within the project site. Therefore, the impact associated with risk involving inundation by seiche, tsunami, or mudflow would be less than significant.

Impact C-HY: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the site vicinity, could result in less-than-significant cumulative impacts to hydrology and water quality. (Less than Significant with Mitigation)

Development projects at and in the vicinity of the Airport could result in temporary and permanent impacts to hydrology and water quality, and could potentially exceed applicable water quality standards. Temporary impacts may result from land clearing, site disturbance, and grading associated with construction activities.

¹¹⁹ City and County of San Francisco (CCSF), San Francisco General Plan Community Safety Element, 2007.

¹²⁰ Ritter, J.R. and W.R. Dupre, *Maps Showing Areas of Potential Inundation by Tsunamis in the San Francisco Bay Region, California*, U.S. Geological Survey, Miscellaneous Field Studies Map MF 480, 1:125,000, 1972.

Typical construction impacts include increased erosion, sediment transport, siltation, and onsite storage and use of lubricants and fuels. Groundwater is shallow in the project vicinity, and development projects could intercept shallow groundwater, potentially requiring dewatering, which could lead to depletion of groundwater supplies. Development could also lead to exposure of people or structures to a significant risk of loss, injury, or death involving flooding related to sea level rise. These impacts would be cumulatively significant. Potential water quality degradation may result from development construction activities and new facilities or operations that could introduce different types of pollutants in groundwater and in stormwater runoff, increase water consumption, and increase wastewater or industrial treatment volumes; however existing programs, policies, and regulatory requirements would prevent and/or minimize such degradation to less-than-significant levels. Development projects would not likely result in substantial alteration of drainage patterns or flood flows, create or contribute runoff water that would exceed the capacity of stormwater drainage systems, or expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow. Therefore, these cumulative impacts would be less than significant.

The proposed project has the potential to adversely affect water quality and groundwater supplies during construction, resulting in a cumulatively considerable contribution to cumulatively significant water quality impacts. **Mitigation Measure M-HY-1a, BMPs and Erosion Control Measures, and Mitigation Measure M-HY-1b, Management of Dewatering Discharges**, would be implemented to provide treatment, ensure that discharges to receiving waters meet applicable water quality objectives, and ensure that dewatering would be subject to a management plan, as described above. These measures would be implemented in conjunction with the SFO SWPPP to reduce water quality and groundwater impacts to a less-than-significant level. These mitigation measures, in conjunction with the SFO SWPPP that is already in force and the temporary nature of the impacts, would reduce the proposed project's contribution to cumulative water quality and groundwater impacts to less-than-cumulatively-considerable levels, and hence these cumulative impacts would be less than significant with implementation of these mitigation measures. SFO has constructed improvements such as a partial seawall to protect the existing runways and airfield operations from the potential for flooding as a result of currently projected sea level rise and storm events through 2050. As new studies regarding sea level rise become available, SFO will evaluate its flood protection and drainage facilities, and will upgrade flood protection measures as required. Therefore, the project's contribution to exposure of people or structures to a significant risk of loss, injury, or death involving flooding related to sea level rise would not be cumulatively considerable. This impact, as well as impacts related to substantial alteration of drainage patterns and flood flows, creation or contribution of runoff water that would exceed the capacity of stormwater drainage systems, and exposure of people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow, would be less than significant.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
16 HAZARDS AND HAZARDOUS MATERIALS Would the project:					
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☒	☐	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐	☐
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐	☐
h) Expose people or structures to a significant risk of loss, injury or death involving fires?	☐	☐	☒	☐	☐

SFO is a public airport and there is no private airstrip located in the vicinity of the proposed project. Therefore, criterion 16f is not applicable.

Impact HZ-1: The proposed project would not create a significant hazard through routine transport, use, disposal, handling or emission of hazardous materials. (Less than Significant)

The types, characteristics, and occurrences of hazardous materials and other similarly regulated substances at SFO are typical of most metropolitan airports that offer commercial, cargo, and general aviation services. These services include the fueling, servicing, and repair of aircraft, ground support equipment, and motor vehicles; the operation and maintenance of the airfield, main terminal complex and parking facilities; and a range of other special-purpose facilities and operations connected with aviation (i.e., rental car and air cargo facilities, navigation, and air traffic control functions). The largest overall quantities of substances used at SFO that are classifiable as hazardous are aircraft and motor vehicle fuels. Other, smaller amounts of

petroleum products (e.g., lubricants and solvents), waste materials (e.g., used oils, filters, cleaning residues, and spent batteries) and manufactured chemicals (e.g., herbicides, fertilizers, paints, fire-fighting foam, de-icing fluids) are stored in various locations throughout the Airport. These materials and substances are characteristically used on a routine basis in support of aircraft, ground support equipment, and motor vehicle maintenance activities, and for a range of other similar functions to operate the Airport and to meet aviation safety requirements. The use of hazardous materials and other similarly regulated substances for routine operations at SFO would continue, and is not anticipated to increase as a result of implementation of the proposed project because there would be no increase in airport operations, or the number of passengers or aircraft operations at the Airport as a result of the SFO RSA Program.

Impact HZ-2: The proposed project could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. (Less than Significant with Mitigation)

Hazardous materials releases to the environment are regulated by federal and state regulations and agencies. At SFO, the San Mateo County Environmental Health Services Department enforces these regulations pertaining to hazardous materials, solid wastes, and underground storage tanks (USTs) and aboveground storage tanks. The California Department of Toxic Substances Control compiles and maintains lists of potentially contaminated sites throughout the state.

An assessment was conducted to identify sites and facilities that are known, suspected, or likely to contain or store hazardous materials and to identify areas of known subsurface soil and/or groundwater contamination at SFO and within the project vicinity. In order to assess these sites of potential concern, a database containing federal, state, and local regulatory agency file information was searched to support this assessment.¹²¹ This database report was used as a screening tool to identify known hazardous materials release sites, generators of hazardous waste(s), UST sites, etc., that are reported to be present in the general vicinity of SFO. Hazardous materials release sites on and listed within 0.25 mile of the Airport were evaluated in greater detail.

The Environmental Data Resources, Inc. (EDR) records search identified a total of 268 sites of potential concern. Approximately 100 of the 268 environmental database records had incomplete location information due to the lack of street addresses for facilities within the Airport. ~~Only three sites were specifically mapped by EDR within the areas that would be disturbed by construction.~~ However, location information included in the database records was often incomplete, and many records were mapped at the approximate center of the airport property rather than at the actual release location on the Airport. For these reasons, all sites mapped within SFO and within 0.25 mile from the project site were reviewed to assess the potential for contamination and for impacts to occur. Sites were eliminated from further analysis as appropriate if regulatory agency

¹²¹ Environmental Data Resources (EDR), The EDR RadiusMap™ Report with GeoCheck®, SFO RSA, 275 S. Airport, Blvd, San Francisco, CA 94128, Inquiry Number: 2983113.2s, February 03, 2011. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

closure was obtained after site investigation and remediation of the release, or if it was apparent from descriptive location information that the release did not occur in the vicinity of the project site.

Approximately 19 of the 268 reported hazardous waste release sites are known to be, or have the potential to be, within the vicinity of the project site that would be disturbed by construction of the SFO RSA Program. The releases at these sites may have resulted in groundwater or soil contamination, and the status of final actions to remedy the release cannot be determined based on database records.

In addition to the EDR database search, a review of the GeoTracker database was performed for sites relevant to this analysis that may not have been mapped by EDR. The San Francisco Airport Boarding Area B site, located to the west of Runway 1L-19R, was identified in the GeoTracker database but was not mapped by EDR. Relevant documents regarding this site were reviewed, and it was added to the list of potential sites. The releases at the sites identified have primarily been of petroleum hydrocarbons from leaking USTs and jet fuel releases from surface spills and below-grade pipeline leaks. In addition to these reported hazardous waste release sites, historical maps and photographs indicate that the Airport was incrementally developed by filling portions of San Francisco Bay from 1927 to 1973. These fill materials may have included hazardous materials.^{122,123,124}

Although the exact locations are not available for the majority of past releases that may have impacted subsurface conditions, these sites are generally located in the vicinity of the approach (western) ends of Runways 10L and 10R, and the approach (southern) ends of Runways 1L and 1R. The majority of past releases have been petroleum hydrocarbons from leaking USTs and jet fuel releases from spills and below-grade pipelines. In the case of larger releases, soil or free product removal followed by routine groundwater monitoring events were conducted in order to study and/or reduce the potential threat of offsite migration and impacts.

Construction activity associated with the proposed project would mostly involve removal of existing surface material (i.e., concrete and asphalt) to prepare the new surface and relatively shallow excavations. Typical excavation depths for the proposed project would be approximately 2 to 4 feet. Other excavations for the seawall, electrical substation, and pump station would range from 10 to 25 feet deep. Previous studies have indicated that depth to groundwater at SFO varies in the range of 0 to 17 feet bgs.¹²⁵ Construction activities would also include the relocation of buildings/structures, which have the potential to include asbestos-containing materials, lead-based paint, or other hazardous building materials. These construction activities would also involve the use of hazardous materials in quantities that are typical of the construction industry.

¹²² EDR, Certified Sanborn® Map Report, SFO RSA, 275 S. Airport, Blvd, San Francisco, CA 94128, Inquiry Number: 2983113.3, February 04, 2011. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

¹²³ EDR, EDR Historical Topographic Map Report, SFO RSA, 275 S. Airport, Blvd, San Francisco, CA 94128, Inquiry Number: 2983113.4, February 04, 2011. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

¹²⁴ EDR, The EDR Aerial Photo Decade Package, SFO RSA, 275 S. Airport, Blvd, San Francisco, CA 94128, Inquiry Number: 2983113.5, February 08, 2011. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

¹²⁵ Supra note 1064.

The project sponsor would ensure that the storage, labeling, and disposal of hazardous materials in accordance with federal, state, and local regulations are addressed in construction contract documents. Contractors would be held responsible for reporting any accidental discharges of hazardous materials or other similar substances (where amounts are above the threshold for reportable quantities). If threshold limits are exceeded for fuel storage, a spill prevention control and countermeasures plan would be required for the storage of flammable fuel hydrocarbons at the site.

Potential construction impacts associated with the SFO RSA Program may include the possibility of encountering soil and/or groundwater contamination in select areas; the possibility of encountering asbestos-containing materials, lead-based paint, or other hazardous building materials; and the handling of hazardous materials typically associated with construction. These impacts would be reduced to less-than-significant levels through compliance with applicable federal, state, and local regulations, and the implementation of **Mitigation Measures M-HY-1a** and **M-HY-1b** (see Topic E-15, Hydrology and Water Quality, on pages 1750 through 17984), and **Mitigation Measures M-HZ-2a**, **M-HZ-2b**, and **M-HZ-2c**, below. Additionally, a SWPPP would be required by the SWRCB for construction activities as described in Topic E.15 on pages 1734 through 175 of this Initial Study, which would include BMPs intended to eliminate or reduce the release of contaminants into the environment during wet weather conditions. With implementation of these mitigation measures, the potential for impacts related to hazardous materials handling and potentially contaminated soil and/or groundwater would be reduced to less-than-significant levels.

Mitigation Measure M-HZ-2a: Contaminated Soils and/or Groundwater

For any location where environmental contamination could be encountered during the construction phase, the project sponsor shall ensure that the contractor's construction plans and specifications include provisions for the handling, storage, treatment, and/or testing and disposal of hazardous materials, contaminated soil, and/or groundwater. These provisions shall include the excavation and offsite disposal of contaminated soil, or testing and reuse of contaminated soil on the project site beneath sealed surfaces.

All excavated soil from each project area shall be stockpiled in a designated secure area, and representative samples shall be collected from each stockpile for analysis of petroleum hydrocarbons (including gasoline, jet, and diesel fuels) and for VOCs (including benzene, toluene, ethylbenzene, and xylenes). The samples shall also be analyzed for cadmium, chromium, nickel, lead, and zinc. Each stockpile shall be disposed of at an appropriate landfill based on the soil contaminant levels, or reused at the Airport if no contaminants were detected or if the detected levels were below the allowable limits established for the Airport by the RWQCB.

Mitigation Measure M-HZ-2b: Dewatering, Water Testing, Storage, and Treatment

For locations requiring dewatering where environmental contamination could be encountered during the construction phase, the project sponsor shall ensure that the contractor arranges for required dewatering

water testing, storage, and treatment, in compliance with the Industrial Waste Process under the NPDES Permit Number CA0028070, San Francisco Bay RWQCB Order Number R2-2007-0060. Water shall be tested for the same constituents as those identified for excavated soil. If contaminants are detected in the stored groundwater, the water shall be transported to the Mel Leong Treatment Plant for treatment prior to disposal.

Mitigation Measure M-HZ-2c: Hazardous Building Materials

The project sponsor shall ensure that the contractor's demolition plans and specifications include requirements for the testing, handling, removal, and disposal of hazardous materials if demolition of any existing structures other than concrete and asphalt is required, such as building materials that are known, or suspected, to have asbestos-containing materials or lead-based paint.

Impact HZ-3: The project site is not located within one-quarter mile of an existing or planned school, and therefore would not emit hazardous emissions or handle hazardous material within the vicinity of a school (Less than Significant)

No existing or planned elementary, middle/intermediate, or high school is within one-quarter mile (1,320 feet) of the project site. The Millbrae Nursery School and the Happy Hall School daycare centers are located approximately 1,700 feet or more from SFO. Therefore, impacts associated with hazardous emissions, or handling of hazardous material, on an existing or planned school are expected to be less than significant.

Impact HZ-4: The project site is located on airport property that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. (Less than Significant with Mitigation)

Impact HZ-2, above, describes the known and suspected sites and facilities that contain or store hazardous substances, or have subsurface soil and/or groundwater contamination at SFO and within the project vicinity, and describes impacts associated with construction of the proposed project. Hazardous materials impacts would be reduced to a less-than-significant level through compliance with applicable federal, state, and local regulations and the implementation of Mitigation Measures M-HY-1a, M-HY-1b, M-HZ-2a, M-HZ-2b, and M-HZ-2c, described above.

Impact HZ-5: The proposed project is located on airport property and would not result in a safety hazard for people residing or working in the project area. (Less than Significant)

The proposed project would be constructed on airport property and involves improving RSAs of existing runways to enhance aviation safety at SFO in accordance with federal regulations. The SFO RSA Program is not an airfield or aircraft capacity-enhancing project, and would not result in any changes in aviation activity

at the Airport. Therefore, the proposed project would not increase safety hazards for people residing or working in the project area, and impacts would be less than significant.

Impact HZ-6: The proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (Less than Significant)

The SFO RSA Program is not a capacity-enhancing project, and would not result in any changes in aviation activity at SFO. Therefore, the number of workers or passengers/customers using SFO would not increase, and hence the project would not adversely affect an emergency evacuation. As discussed in Topic E.5, Transportation and Circulation, of this Initial Study, construction-related traffic is not expected to pose an obstacle to emergency response vehicles, and any temporary increases in traffic volumes related to construction activities are expected to be less than significant. Although the project's construction traffic is expected to result in less-than-significant impacts, Improvement Measure I-TR-1 ~~the project sponsor has agreed to implement an improvement measure that would further reduce the effects of construction activities on transportation, because it entails~~ by developing and implementing a construction traffic control plan.

Improvement Measure I-TR-1 is presented in Topic E.5 on pages 671 through 735 of this Initial Study. Therefore, the proposed project would not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan, and would result in a less-than-significant impact on an emergency response plan or emergency evaluation plan.

Impact HZ-7: The proposed project would not expose people or structures to a significant risk of loss, injury, or death involving fires. (Less than Significant)

The proposed project involves improving the RSAs of the existing runways to enhance aviation safety at SFO in accordance with federal standards and regulations. In addition, final construction plans would be reviewed by SFO's Building Inspection and Code Enforcement section in order to ensure compliance with applicable safety standards and regulations. Therefore, the proposed project's exposure of people or buildings/structures to the risk of fire would result in less-than-significant impacts.

Impact C-HZ: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the project site vicinity, could result in less-than-significant impacts related to hazards and hazardous materials. (Less than Significant with Mitigation)

Impacts from hazards are generally site-specific and typically do not result in cumulative impacts. Any hazards present at surrounding development sites would be subject to the federal, state, and local regulations and requirements discussed for the proposed project above. However, cumulative impacts could be significant because construction sites typically involve the use of hazardous materials, which could result in upset or accident conditions creating a significant hazard to the public or the environment, or because unknown contamination could migrate downgradient to affect larger areas.

The project site is located on airport property that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, and could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. The handling of hazardous materials associated with proposed project construction, and the possibility of encountering, in select areas, soil and/or groundwater contamination, asbestos-containing materials, lead-based paint, or other hazardous building materials, could result in a cumulatively considerable contribution to cumulatively significant hazardous materials impacts. These impacts would be substantially reduced through compliance with applicable federal, state, and local regulations, and the implementation of **Mitigation Measures M-HY-1a, BMPs and Erosion Control Measures; M-HY-1b, Management of Dewatering Discharges; M-HZ-2a, Contaminated Soils and/or Groundwater; M-HZ-2b, Dewatering, Water Testing, Storage, and Treatment; and M-HZ-2c, Hazardous Building Materials.** Hence, the proposed project's contribution to cumulative hazardous materials impacts would not be cumulatively considerable, and these cumulative impacts would be less than significant with mitigation.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
17. MINERAL AND ENERGY RESOURCES					
Would the project:					
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒	☐
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒	☐
c) Encourage activities which result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner?	☐	☐	☒	☐	☐

Impact ME-1: The proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. (No Impact)

Within the project area, no important known mineral deposits or mining activities for oil, coal, natural gas, sand, gravel, and crushed stone occur. The proposed project would be developed on existing airport property and would not impact mineral resources that are important to the region and state residents.

Impact ME-2: The proposed project would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. (No Impact)

Construction of the proposed project would use common building materials such as asphalt and concrete for runways, taxiways, service roads, and EMAS installations, and soil for grading portions of the RSAs. These

materials are considered widely available in the San Francisco Bay Area. Therefore, the proposed project would have no impact on locally important mineral resources within the project area.

Impact ME-3: The proposed project would not encourage activities which result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner. (Less than Significant)

Because the proposed project would cause no increase in airport operations, or the number of passengers or aircraft operations at the Airport, energy demands at SFO are not expected to result in increases in use of electricity, gas, or fuel. Fuel and energy would be used by construction workers' vehicles and by construction equipment and vehicles during project development. However, such use would not be wasteful. BMPs would be implemented to ensure that these resources would be used conservatively.

Because the proposed project would not induce greater airport operations, increase the number of aircraft, or alter the Airport's use, project impacts on fuel, electricity, water, and other resources would be less than significant. In addition, SFO incorporates a number of programs to promote sustainable design. These programs can be divided into four areas: (1) air quality; (2) waste reduction and recycling; (3) energy conservation and renewable energy; and (4) climate change.

Impact C-ME: The proposed project in combination with other past, present, or reasonably foreseeable projects would result in less-than-significant impacts to mineral and energy resources. (Less than Significant)

Implementation of the proposed project, in combination with cumulative development projects, is not expected to result in significant impacts to important mineral resources because these resources are not present within the project area. BMPs would be implemented to ensure that fuel and other resources would be used conservatively throughout the construction and implementation of any SFO development projects. As noted above, no known minerals exist at the project site; hence, the project would not contribute to any cumulative impact on mineral resources. In addition, project construction materials that would be used are considered widely available in the San Francisco Bay Area, and would not result in a loss of locally important mineral resource. The SFO RSA Program would not induce airport activities that would generate greater demand for water, electric energy, or fuels, but not to levels greater than planned or available, and they would not be used in a wasteful manner. The proposed project would therefore have less-than-significant cumulative impacts on mineral and energy resources.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
18. AGRICULTURE AND FOREST RESOURCES					
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.					
Would the project					
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)) or timberland (as defined by Public Resources Code Section 4526)?	☐	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or forest land to non-forest use?	☐	☐	☐	☐	☒

As shown on the maps prepared pursuant to the California Department of Conservation's (CDOC) Farmland Mapping and Monitoring Program, the nearest Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, is located 3 miles west and north of the Airport. Therefore, SFO's airfield is not designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared by the CDOC's Farmland Mapping and Monitoring Program;^{126,127} and criterion 18a is not applicable. Land within the project area is not zoned for agricultural purposes, and is not covered by Williamson Act contracts.^{128,129,130,131,132} Therefore, criterion 18b is not applicable. SFO and areas within the project area are

¹²⁶ California Department of Conservation (CDOC), *San Mateo County Important Farmlands*, Division of Land Resource Protection, Farmland Mapping and Monitoring Program, 2008. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

¹²⁷ USDA, Soil Survey Geographic (SSURGO) Database for San Mateo County, Eastern Part and San Francisco County, California, and National Soil Information System (NASIS) Database, Natural Resources Conservation Service, 2004. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

¹²⁸ City of Burlingame (COB), Zoning Ordinance, City of Burlingame Municipal Code, Title 25, 1976. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

¹²⁹ City of Millbrae (COM), Zoning Ordinance, City of Millbrae Municipal Code, Title 10, Ch. 10.05, 1988. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

not classified as forest land pursuant to California PRC Section 12220(g) or timberland pursuant to PRC Section 4526; are not used for agricultural purposes; and are not zoned for such uses. Therefore, criteria 18c and 18d are not applicable.

Impact C-AF: The proposed project, in combination with other past, present, or reasonably foreseeable projects, would not result in impacts to agricultural and forest resources. (No Impact)

As described above, agriculture and forestry resources are not applicable to the proposed project. Therefore, the proposed project would have no cumulative agricultural and forest resource impacts.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
19. MANDATORY FINDINGS OF SIGNIFICANCE Would the project:					
a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐	☐
b) Have impacts that would be individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☒	☐	☐	☐
c) Have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐	☐

a. Most of the potential impacts from the SFO RSA Program would be associated with construction activities as described in the preceding analysis. Less than significant operational impacts are anticipated primarily because the SFO RSA Program is not a capacity-enhancing project, and would not result in any associated increase or decrease

¹³⁰ City of San Bruno (COSB), City of San Bruno Zoning Map, 2007. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

¹³¹ CDOC, Division of Land Resource Protection in Conjunction with Williamson Act Participant Counties, 2006. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

¹³² San Mateo County (SMC), Zoning Regulations, Environmental Services Agency, 1999. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

in airport operations, or the number of passengers or aircraft operations at the Airport. The project has the potential to result in significant impacts in the following areas: cultural resources; biological resources; hydrology and water quality; and hazards and hazardous materials. However, incorporation and implementation of the mitigation measures identified in this Initial Study would reduce all significant project-related impacts to less-than-significant levels. Therefore, project impacts would be less than significant with mitigations incorporated.

b. Both long-term and short-term environmental effects associated with the proposed project would be less than significant with mitigations incorporated in the project, as discussed in the preceding analysis. Each environmental topic area includes an analysis of cumulative impacts. Cumulative impacts from the proposed project would be less than significant with mitigations incorporated.

c. This Initial Study identifies potential significant impacts associated with cultural resources; biological resources; hydrology and water quality; and hazards and hazardous materials. Mitigation measures have been identified for all potentially significant impacts to reduce them to less-than-significant levels. Project impacts related to land use and land use planning; aesthetics; transportation and circulation; noise; wind and shadow; recreation; utilities and service systems; public services; geology, soils and seismicity; mineral and energy resources; would be less than significant. The proposed project would have no impact on population and housing or agricultural resources. Cumulative impacts would be less than significant with mitigation incorporated. Therefore, the proposed project would not result in environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly.

F. MITIGATION MEASURES AND IMPROVEMENT MEASURES

F.1 MITIGATION MEASURES

The following mitigation measures ~~have been adopted by the project sponsor and~~ are necessary to avoid potential significant effects of the proposed project.

Mitigation Measure M-CP-1 – Accidental Discovery Measures

The following mitigation measure shall be required to avoid any potential adverse effect from the proposed project on accidentally discovered buried or submerged historical resources as defined in *California Environmental Quality Act (CEQA) Guidelines* Section 15064.5(a)(c). The project sponsor shall distribute the Planning Department archeological resource “ALERT” sheet to the project prime contractor; to any project subcontractor (including demolition, excavation, grading, foundation, or pile driving firms); or to any utilities firm involved in ground-disturbing activities within the project site. Prior to any ground-disturbing activities being undertaken, each contractor is responsible for ensuring that the “ALERT” sheet is circulated to all field personnel, including machine operators, field crew, pile drivers, and supervisory personnel. The project sponsor shall provide the Environmental Review Officer (ERO) with a signed affidavit from the responsible parties

(prime contractor, subcontractor(s), and utilities firm) to the ERO confirming that all field personnel have received copies of the Alert Sheet.

Should any indication of an archeological resource be encountered during any ground-disturbing activity of the project, the project Head Foreman and/or project sponsor shall immediately notify the ERO and shall immediately suspend any ground-disturbing activities in the vicinity of the discovery until the ERO has determined what additional measures should be undertaken.

If the ERO determines that an archeological resource may be present within the project site, the project sponsor shall retain the services of an archeological consultant from the pool of qualified archeological consultants maintained by the Planning Department archeologist. The archeological consultant shall advise the ERO as to whether the discovery is an archeological resource, retains sufficient integrity, and is of potential scientific/historical/cultural significance. If an archeological resource is present, the archeological consultant shall identify and evaluate the archeological resource. The archeological consultant shall make a recommendation as to what action, if any, is warranted. Based on this information, the ERO may require, if warranted, specific additional measures to be implemented by the project sponsor.

Measures might include preservation in situ of the archeological resource; an archeological monitoring program; or an archeological testing program. If an archeological monitoring program or archeological testing program is required, it shall be consistent with the San Francisco Planning Department, Environmental Planning Division guidelines for such programs. The ERO may also require that the project sponsor immediately implement a site security program if the archeological resource is at risk from vandalism, looting, or other damaging actions.

The project archeological consultant shall submit a Final Archeological Resources Report (FARR) to the ERO, evaluating the historical significance of any discovered archeological resource and describing the archeological and historical research methods employed in the archeological monitoring/data recovery program(s) undertaken. Information that may put at risk any archeological resource shall be provided in a separate removable insert within the final report.

Copies of the Draft FARR shall be sent to the ERO for review and approval. Once approved by the ERO, copies of the FARR shall be distributed as follows: California Archeological Site Survey Northwest Information Center (NWIC) shall receive one copy and the ERO shall receive a copy of the transmittal of the FARR to the NWIC. The San Francisco Planning Department, Environmental Planning Division shall receive three copies of the FARR, along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of high public interest or interpretive value, the ERO may require a different final report content, format, and distribution than that presented above.

Mitigation Measure M-CP-4 – Inadvertent Discovery of Human Remains and Associated or Unassociated Funerary Objects including those Interred Outside of Formal Cemeteries

The treatment of human remains and of associated or unassociated funerary objects discovered during any ground-disturbing activity shall comply with applicable state laws. In the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, the following steps shall be taken:

- (1) The San Francisco Airport Commission will ensure that there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:
 - (A) The appropriate County Coroner must be contacted to determine that no investigation of the cause of death is required, and
 - (B) If the County Coroner determines the remains to be Native American:
 1. The County Coroner shall contact the Native American Heritage Commission within 24 hours;
 2. The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descended from the deceased Native American;
 3. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code (PRC) Section 5097.98, or
- (2) Where the following conditions occur, the San Francisco Airport Commission or its authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance:
 - (A) The Native American Heritage Commission is unable to identify a most likely descendent, or the most likely descendent failed to make a recommendation within 24 hours after being notified by the Commission;
 - (B) The identified descendant fails to make a recommendation; or

- (C) The San Francisco Airport Commission or its authorized representative rejects the recommendation of the descendant, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.

This shall include immediate notification of the appropriate County Coroner, and in the event of the Coroner's determination that the human remains are Native American, notification of the California State Native American Heritage Commission, who shall appoint a Most Likely Descendant (MLD) (PRC Section 5097.98). The archeological consultant, project sponsor, and MLD shall make all reasonable efforts to develop an agreement for the treatment of, with appropriate dignity, human remains and associated or unassociated funerary objects (CEQA Guidelines Section 15064.5[d]). The agreement shall take into consideration the appropriate excavation, removal, recordation, analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects. California PRC allows 24 hours to reach agreement on these matters. If the MLD and the other parties do not agree on the reburial method, the project shall follow Section 5097.98(b) of the California PRC, which states, "the landowner or his or her authorized representative shall reinter the human remains and items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance."

Improvement Measure I-TR-1: Traffic Control Plan (Construction Activities)

The Airport shall require contractor(s) to prepare and successfully implement a traffic control plan. The traffic control plan shall include appropriate project specific measures, including measures to reduce potential impacts to traffic flows on roadways affected by project construction activities. These roadways are expected to include U.S. Highway 101, Interstate 380, North Access Road, South Airport Boulevard, San Bruno Avenue, Millbrae Avenue, North McDonnell Road, South McDonnell Road, and Old Bayshore Highway. The Airport and construction contractor(s) shall also coordinate with local jurisdictions, transit agencies, and the California Department of Transportation (Caltrans); as appropriate, for affected roadways and intersections. The traffic control plan shall include the following elements as appropriate:

- Flaggers and/or signage shall be used to guide vehicles through and/or around the construction zone. At all times, the contractor shall maintain access for emergency response vehicles.
- Truck routes designated by cities and counties shall be identified in the traffic control specifications. Haul routes that minimize truck traffic on local roadways and residential streets shall be used to the extent feasible. For project work that requires movement of oversized or excessive load vehicles on the State Highway System, the contractor shall be responsible for obtaining a Transportation Permit from Caltrans.

- ~~Sufficient staging areas shall be provided for trucks accessing construction zones to minimize disruption to adjacent land uses.~~
- ~~Along major arterials, truck trips shall be scheduled outside of the peak morning and evening, and event commute periods to the extent feasible.~~
- ~~Construction shall be coordinated with local transit service providers, including temporary relocation of bus routes or bus stops in work zones, if necessary.~~
- ~~Public information relating to affected roadways and intersections shall be provided as appropriate.~~
- ~~Where it is feasible and safe to do, existing pedestrian and bicycle access and circulation shall be maintained. If access and circulation cannot be maintained, detours shall be designated and posted for pedestrians and bicyclists.~~
- ~~All construction equipment and materials shall be stored in designated contractor staging areas on or adjacent to the worksite on airport property, in a manner that minimizes obstruction of traffic.~~
- ~~Locations shall be identified for parking by construction workers, either within the construction zone, or if necessary, at a nearby location with transport provided between the parking location and the worksite.~~
- ~~Public roadways shall be repaired or restored to their original conditions upon completion of construction.~~
- ~~The traffic control plan shall conform to the California Manual on Uniform Traffic Control Devices: Part 6, Temporary Traffic Control. Traffic plans may require Caltrans, county, and city review and/or approval.~~

Improvement Measure I-NO-1—Provide Noise Insulation in Accordance with an FAA-Approved Noise Insulation Program

The project sponsor shall offer to provide noise insulation to noninsulated homes affected by a change of Community Noise Equivalent Level (CNEL) 1.5 A-weighted decibels (dBA) or higher in areas exposed to CNEL 65 dBA or higher as a result of the proposed project. This insulation shall be provided in accordance with a Federal Aviation Administration (FAA)-approved noise insulation program.

Mitigation Measure M-AQ-2 — Implement Basic Construction Best Management Practices

The construction contractor shall reduce construction-related air pollutant emissions by implementing the Bay Area Air Quality Management District's basic fugitive dust control measures that are recommended for all projects located within the San Francisco Bay Area Air Basin. Therefore, the project shall include the following requirements in construction contracts:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
- A publically visible sign shall be posted with the telephone number and person to contact at the Planning Department regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, California Code of Regulations Section 2485). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

Improvement Measure I-AQ-2 — Implement Additional Fugitive Dust Emissions Reduction Measures

~~The construction contractor shall implement the following measures during construction to further reduce construction-related fugitive dust emissions:~~

- ~~All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.~~
- ~~The simultaneous occurrence of excavation, grading, and ground disturbing construction activities in the same area at any one time shall be limited. Activities shall be phased if feasible to reduce the amount of disturbed surfaces at any one time.~~
- ~~All trucks and equipment, including tires, shall be washed off prior to leaving the site.~~

Mitigation Measure M-BI-1 – Avoidance and Minimization Measures for Special-Status Fish

To avoid adverse impacts on federally and state-listed fish species, the project sponsor shall implement the following avoidance and minimization measures when conducting in-water work.

- All pile installation activities associated with the modifications to the trestle structures in San Francisco Bay that support the approach lighting systems shall occur between June 15 and November 30 to avoid time periods when federally and state-protected fish species have the greatest potential to occur in the vicinity of SFO.
- All piles shall consist of 20-inch-diameter timber that is chemically treated and wrapped with an impact-resistant, biologically inert material. ~~All pilings shall be driven with a vibratory hammer.~~
- Prior to construction, silt curtains shall be installed around the in-water work area to minimize potential sedimentation and turbidity resulting from pile driving. Silt curtains (also called turbidity barriers, turbidity curtains, or silt barriers) would be used to contain silt and sediments stirred by in-water or near-water construction work (e.g., pile driving, dredging) and typically consist of a “curtain” of geotextile fabric with plastic floats at the water surface and chains or other ballast at the bottom. The silt curtains shall extend from the water surface to the San Francisco Bay bottom substrate.
- All pile installation activities shall be conducted during low tides (if feasible due to access considerations) when water levels are at their lowest, to minimize potential noise-related impacts on fish and other marine organisms and turbidity.
- In areas of strong current, piles shall be driven when such currents are reduced (i.e., centered around slack current when no appreciable tidal current is present) to minimize the number of fish exposed to adverse levels of underwater sound.

- After all pile-driving is completed, the project sponsor shall prepare a post-construction compliance report for submittal to the San Francisco Planning Department, Environmental Planning Division, verifying that the above-described measures were successfully implemented.

Mitigation Measure M-BI-2 – Compensatory Tidal Marsh Mitigation

To compensate for 0.04 acre of direct impacts on tidal marsh and associated habitat for California clapper rail and other special-status bird species because of the necessary vehicle service road relocation, SFO shall purchase (prior to construction) and apply 0.20 acre of agency-recognized (i.e., U.S. Army Corps of Engineers [USACE], U.S. Fish and Wildlife Service [USFWS], and Regional Water Quality Control Board [RWQCB]) constructed tidal wetland mitigation habitat from the Deepwater Slough Island Wetland Mitigation Project in Redwood City as in-kind mitigation. This acreage represents a mitigation ratio of 5:1 (created tidal wetland acreage:adversely impacted acreage). Based on preliminary discussions between SFO and the regulatory agencies at meetings held on October 13, 2010 (Interagency Meeting with USACE, U.S. Environmental Protection Agency, and RWQCB), January 20, 2011 (USFWS), and February 8, 2011 (California Department of Fish and Game [CDFG] and National Marine Fisheries Service), this mitigation program was considered acceptable to offset impacts to California clapper rail and other special-status bird species. Deepwater Slough Island contains 30 acres of high-quality tidal salt marsh habitat that was created in 2000 by removing dredged spoils that had been deposited on the island from the 1930s through the mid-1960s. The new tidal wetland habitat at Deepwater Slough Island was specifically designed to compensate for impacts on California clapper rail as a result of construction of the Pacific Shores Center Project in Redwood City. The majority of the marsh consists of a mid-elevation marsh plain dominated by pickleweed, with approximately 10,500 linear feet of constructed tidal channels. The restored marsh contains suitable habitat for California clapper rail. The marsh is also contiguous with the extensive marshes of the Bair and Greco Island complexes, which are known to support populations of California clapper rail and other special-status bird species. Since completion of the restoration work in 2000, the marsh has matured into fully functional tidal marsh habitat, with dense pickleweed cover and newly developed tidal channels. As such, there shall be no temporal habitat loss from project implementation, because the mitigation area is currently providing fully established and functional tidal marsh habitat. ~~The location of the Deepwater Slough Island Wetland Mitigation Project relative to the Airport and a map of this mitigation area are shown on Figures 27 and 28, respectively.~~ The location of this the Deepwater Slough project is consistent with prior agency decisions regarding offsite mitigation for SFO projects, because wetland impacts for the Master Plan Improvement Projects were addressed, in part, by a wetland creation effort at nearby Outer Bair Island.

Mitigation Measure M-BI-3 – Avoidance and Minimization Measures for California Clapper Rail and Other Special-Status Tidal Marsh Bird Species

To avoid adverse impacts on California clapper rails and other special-status tidal marsh bird species, the project sponsor shall implement the following avoidance and minimization measures:

- Any project activities for the vehicle service road relocation and outfall pipe replacement in the tidal marsh along the southeastern edge of Runway 1R-19L shall be conducted outside the California clapper rail breeding season (February 1 through August 31), which also encompasses the breeding season for salt marsh common yellowthroat, Alameda song sparrow, and Bryant's savannah sparrow. Construction in this area shall be conducted from September 1 through October 31.
- A qualified biologist with previous California clapper rail experience shall monitor all vehicle service road relocation and outfall pipe replacement activities occurring in the tidal marsh. The biologist shall document compliance with the avoidance and minimization measures. The biologist shall have the authority to stop work if deemed necessary for any reason to protect California clapper rails and other special-status tidal marsh bird species. If the biologist has requested work stoppage because of a listed species, the CDFG Bay Delta Regional Office shall be notified within 24 hours.
- Prior to the initiation of construction of the vehicle service road relocation in the marsh, a qualified biologist familiar with California clapper rail biology shall meet with construction personnel to: (1) provide information on California clapper rail identification, habitat, and behavior; (2) review project-specific measures implemented to minimize effects on California clapper rails; and (3) summarize all required protection measures to be implemented and complied with to ensure that California clapper rails and their habitat are not impacted by construction activities. The training shall also include a brief description of the other special-status tidal marsh bird species.
- To prevent equipment and personnel from entering the marsh and potentially disturbing foraging or roosting California clapper rails and/or other special-status tidal marsh birds, the perimeter of the vehicle service road work area in the tidal marsh shall be staked and fenced with silt fencing. The fence shall be installed under the guidance of a qualified biological monitor.
- To avoid the loss of individual clapper rails, construction activities within or immediately adjacent to the tidal marsh for the vehicle service road relocation and outfall pipe replacement shall not occur within 2 hours before or after extreme high tides (6.5 feet or above, as measured at the Golden Gate Bridge) when the marsh plain is inundated.

During extreme high tides, protective cover for clapper rails is limited and construction activities could prevent them from reaching available cover.

- Construction staging areas shall be located at least 100 feet from water bodies.
- If a California clapper rail or a California black rail is observed within the tidal marsh and adjacent habitat work areas, then construction work shall be stopped immediately by the qualified biologist, and the salt marsh harvest mouse or rail shall be allowed to leave the work area on its own volition. The CDFG shall be notified of any such occurrences. If the mouse or rail does not leave the work area, then no work shall commence until the CDFG has made a determination on how to proceed with construction work activities.
- When daily construction activities for the vehicle service road and seawall relocations will entail vegetation removal, construction of the exclusion fencing, or work within 300 feet of tidal habitats, the qualified biologist shall, prior to the start of construction work each day, thoroughly inspect the tidal marsh work area and adjacent habitat areas to determine whether California clapper rails, California black rails or other special-status species are potentially present.
- After the vehicle service road relocation and outfall pipe replacement construction activities are completed, the project sponsor shall prepare a post-construction compliance report for submittal to San Francisco Planning Department, Environmental Planning Division, verifying that the above-described measures were successfully implemented.

Mitigation Measure M-BI-6 – Compensatory Non-Tidal Wetland Mitigation

SFO shall compensate for the 3.68 acres of permanent impacts to non-tidal jurisdictional areas at a mitigation ratio of 2:1, which represents a target compensation acreage of 7.0 to 7.5 acres. Specifically, SFO will participate in three wetland mitigation projects with the Presidio Trust to meet the target acreage, and is currently finalizing a Memorandum of Understanding between the two organizations. The three Presidio Trust wetland mitigation projects are part of a larger restoration program under the Presidio Vegetation Management Plan that shall restore watersheds that feed into the Crissy Field Tidal Marsh and Mountain Lake. The overall mitigation program for the RSA Project shall be finalized by SFO and approved by the USACE, USFWS, and RWQCB prior to construction of the proposed project. In addition, the overall mitigation program shall be subject to as-needed modifications based on final agency approvals.

The Quartermaster Reach project shall be constructed between the upstream end of the Crissy Field Tidal Marsh and downstream end of the recently restored stream at Tennessee Hollow; the project shall consist of approximately 1.0 acre of open water/mudflat and 4.0 acres of low/brackish marsh

and dune swale, surrounded by coastal dune scrub and pedestrian trails. The YMCA Reach, located immediately upstream of the Tennessee Hollow restored stream, shall consist of approximately 2.0 acres of a braided network of freshwater marsh, riparian scrub, and willow woodland habitats. The East Arm of Mountain Lake project, which is part of a multi-phased restoration effort for Mountain Lake, shall result in the creation of approximately 0.5 acre of seasonal marsh and enhancement of 0.4 acre of existing freshwater marsh. The Presidio Trust staff shall be responsible for maintaining and monitoring the three wetland mitigation projects for a minimum of 5 years until the performance standards are satisfied. The Presidio Trust mitigation projects described above shall be constructed ~~in advance of or~~ concurrent with RSA project components that impact non-tidal jurisdictional areas.

Mitigation Measure M-HY-1a – BMPs and Erosion Control Measures

Erosion control measures and best management practices (BMPs) shall be implemented to minimize the effects of erosion, sedimentation, and leakage of vehicle and equipment fluids, and shall be developed further in the project-specific Storm Water Pollution Prevention Plan (SWPPP) prepared by the contractor in accordance with the requirements of the General Construction Permit. The BMPs described in the SWPPP shall require review and approval by the RWQCB. BMPs implemented as part of the proposed project may include, but are not limited to, the measures described below. The measures may be altered, supplemented, or deleted during the RWQCB review process. Implementation of these measures shall aid in meeting the relevant water quality objectives included in the Basin Plan (e.g., maintain beneficial uses of receiving waters; not create floating material or visible film at the water surface; and prevent toxic substances in concentrations that shall adversely affect aquatic life in receiving waters).

Scheduling

- Schedule construction during the dry season to the extent practicable to minimize ground disturbance during the wet season.
- Stabilize all disturbed soils as soon as possible following the completion of soil-disturbing work.
- Install erosion and sediment control BMPs prior to the commencement of ground-disturbing activities.

Erosion and Sedimentation

- Install silt fences, fiber rolls, or similar suitable measures at the perimeters of the disturbed areas, as well as down-slope of all exposed soil areas, and in other locations at the project site necessary to prevent offsite sedimentation.
- Install temporary slope breakers during the wet season on slopes greater than 5 percent where the base of the slope is less than 50 feet from a water body, wetland, or road crossing at spacing intervals required by the RWQCB.
- Use filter fabric, gravel bags, or other appropriate measures to prevent sediment or paving materials from entering storm drain inlets.
- Detain and treat water produced by construction site dewatering using sedimentation basins, sediment traps (when water is flowing and there is sediment), or other measures to ensure that discharges to receiving waters meet applicable water quality objectives.

Tracking Controls

- Grade and stabilize construction site entrances and exits to prevent runoff from the site and to prevent erosion.
- Install a gravel pad, wash facility, or similar device at site access points, as necessary, to prevent track-out when vehicles exit the site. Remove any soil or sediment tracked off paved roads during construction by employing street sweeping.
- Monitor construction activity in San Francisco Bay and identify periods when localized increases in turbidity may occur.
- Properly dispose of raw cement; concrete or concrete washings; asphalt, paint, or other coatings; oil or other petroleum products; and other hazardous substances to prevent them from contaminating soil, entering watercourses, or harming aquatic life. Prevent visible oil, grease, or foam from forming on soil or water surfaces.
- Install a silt curtain, turbidity curtain, or other sedimentation control measures to trap sediment and prevent sediment and silt load increases in water bodies during construction in San Francisco Bay.
- Do not operate construction vehicles and equipment in flowing water.

Non-Stormwater Control

- Check construction vehicles and equipment daily at startup for leaks, and repair any leaks immediately. Clean construction vehicles and equipment regularly to prevent excessive buildup of oil and grease.
- Conduct refueling and servicing of vehicles and equipment off site or employ other measures to prevent run-on and runoff and to contain spills.

Waste Management and Hazardous Materials Pollution Control

- Prepare a waste management plan to address and provide training procedures for the proper storage, handling, and disposal of fuel, oils, and other wastes from project construction activities to prevent the offsite discharge of leaks or spills. Remove wastes regularly and provide an adequate number of waste containers with lids or covers to keep rain out of the containers and to prevent trash and debris from being blown away during high winds. Locate waste collection areas close to construction entrances and away from roadway and San Francisco Bay. Inspect dumpsters and other waste and debris containers regularly for leaks. Remove and properly dispose of any hazardous materials and liquid wastes placed in these containers.
- Designate and identify location of sanitary facilities (e.g., portable toilets) at a minimum of 200 feet from the San Francisco Bay shoreline. Ensure the containment of sanitation facilities to prevent discharges of pollutants to the storm drainage system or receiving water. Maintain sanitation facilities regularly.
- Maintain spill containment and cleanup equipment onsite. Label and dispose of hazardous wastes properly.

BMP Inspection, Maintenance, and Repair

- Inspect all BMPs on a regular basis to confirm proper installation and function.
- Inspect all stormwater BMPs daily during storms.
- Inspect sediment basins, sediment traps, and other detention and treatment facilities regularly throughout the construction period.

- Provide sufficient devices and materials (e.g., silt fence, fiber rolls, or erosion blankets) throughout project construction to enable immediate repair or replacement of failed BMPs.

Permitting, Monitoring, and Reporting

- Obtain and comply with the RWQCB Section 401 Water Quality Certification.
- Provide the required documentation for SWPPP inspections, maintenance, and repair requirements.
- Maintain written records of inspections, spills, BMP-related maintenance activities, corrective actions, and visual observations of any offsite discharge of sediment or other pollutants, as required by the RWQCB.
- Monitor water quality to assess the effectiveness of control measures.
- Notify the RWQCB and other agencies as required (e.g., CDFG and USFWS) if the criteria for turbidity, oil/grease, or foam are exceeded, and undertake corrective actions.
- Immediately notify the RWQCB and other agencies as required (e.g., CDFG and USFWS) of any spill of petroleum products or other organic or earthen materials, and undertake corrective action.

Post-Construction BMPs

- Revegetate all temporarily disturbed areas as required after construction activities are completed.
- Remove construction debris and trash from the project area and staging areas upon project completion.
- Remove temporary BMPs in phases as necessary to ensure stabilization of the site.
- Maintain post-construction site conditions to avoid any unintended drainage channels, erosion, or areas of sedimentation.
- Correct post-construction site conditions as necessary to comply with the SWPPP and any other pertinent RWQCB requirements.

Mitigation Measure M-HY-1b – Management of Dewatering Discharges

To address potential impacts that dewatering discharges during the construction period may have on the water quality of receiving water bodies, and to comply with the National Pollutant Discharge Elimination System (NPDES) requirements, the contractor shall prepare a project-specific dewatering plan. The discharges shall be handled in accordance with the General Construction Permit. A management plan for dewatering activities shall be prepared to comply with the NPDES requirements. The discharges shall be handled in accordance with the General Construction Permit and the SFO SWPPP, and shall be developed and approved prior to excavation. The dewatering management plan shall specify methods for water collection, transport, treatment, and discharge of all water produced by construction site dewatering. Applicable BMPs shall be identified in the dewatering management plan to ensure that discharges to receiving waters meet applicable water quality objectives.

Water produced by dewatering shall be assessed by visual and olfactory examination, measured for volatile organic compounds ~~VOCs~~, and/or sampled and analyzed for pollutants of concern, as necessary in accordance with the SWPPP. If no contamination is observed or measured, water shall be discharged to the Mel Leong Treatment Plant-Industrial Waste Process (MLTP-IWP) system or to San Francisco Bay through the nearest storm drain inlet. If contamination is observed or detected, and contaminant concentrations are less than influent requirements established by SFO for MLTP-IWP, water shall be discharged to the industrial waste system. If the contaminant concentrations exceed established influent levels, the water shall be treated. Treated water that meets the established influent requirements for the MLTP-IWP or storm water influent concentrations may be discharged to the appropriate system.

Mitigation Measure M-HZ-2a: Contaminated Soils and/or Groundwater

For any location where environmental contamination could be encountered during the construction phase, the project sponsor shall ensure that the contractor's construction plans and specifications include provisions for the handling, storage, treatment, and/or testing and disposal of hazardous materials, contaminated soil, and/or groundwater. These provisions shall include the excavation and offsite disposal of contaminated soil, or testing and reuse of contaminated soil on the project site beneath sealed surfaces.

All excavated soil from each project area shall be stockpiled in a designated secure area, and representative samples shall be collected from each stockpile for analysis of petroleum hydrocarbons (including gasoline, jet, and diesel fuels) and for volatile organic compounds (including benzene, toluene, ethylbenzene, and xylenes). The samples shall also be analyzed for cadmium, chromium, nickel, lead, and zinc. Each stockpile shall be disposed of at an appropriate landfill based on the soil contaminant levels, or

reused at the Airport if no contaminants were detected or if the detected levels were below the allowable limits established for the Airport by the RWQCB.

Mitigation Measure M-HZ-2b: Dewatering, Water Testing, Storage, and Treatment

For locations requiring dewatering where environmental contamination could be encountered during the construction phase, the project sponsor shall ensure that the contractor pre-arranges for required dewatering water testing, storage, and treatment, in compliance with the Industrial Waste Process under the NPDES Permit Number CA0028070, San Francisco Bay RWQCB Order Number R2-2007-0060. Water shall be tested for the same constituents as those identified for excavated soil. If contaminants are detected in the stored groundwater, the water shall be transported to the Mel Leong Treatment Plant for treatment prior to disposal.

Mitigation Measure M-HZ-2c: Hazardous Building Materials

The project sponsor shall ensure that the contractor's demolition plans and specifications include requirements for the testing, handling, removal, and disposal of hazardous materials if demolition of any existing structures other than concrete and asphalt is required, such as building materials that are known, or suspected, to have asbestos-containing materials or lead-based paint.

F.2 IMPROVEMENT MEASURES

The following improvement measures would reduce impacts identified in this Initial Study as being less than significant.

Improvement Measure I-TR-1: Traffic Control Plan (Construction Activities)

The Airport shall require contractor(s) to prepare and successfully implement a traffic control plan. The traffic control plan shall include appropriate project-specific measures, including measures to reduce potential impacts to traffic flows on roadways affected by project construction activities. These roadways are expected to include U.S. Highway 101, Interstate 380, North Access Road, South Airport Boulevard, San Bruno Avenue, Millbrae Avenue, North McDonnell Road, South McDonnell Road, and Old Bayshore Highway. The Airport and construction contractor(s) shall also coordinate with local jurisdictions, transit agencies, and the California Department of Transportation (Caltrans), as appropriate, for affected roadways and intersections. The traffic control plan shall include the following elements as appropriate:

- Flaggers and/or signage shall be used to guide vehicles through and/or around the construction zone. At all times, the contractor shall maintain access for emergency response vehicles.

- Truck routes designated by cities and counties shall be identified in the traffic control specifications. Haul routes that minimize truck traffic on local roadways and residential streets shall be used to the extent feasible. For project work that requires movement of oversized or excessive load vehicles on the State Highway System, the contractor shall be responsible for obtaining a Transportation Permit from Caltrans.
- Sufficient staging areas shall be provided for trucks accessing construction zones to minimize disruption to adjacent land uses.
- Along major arterials, truck trips shall be scheduled outside of the peak morning and evening, and event commute periods to the extent feasible.
- Construction shall be coordinated with local transit service providers, including temporary relocation of bus routes or bus stops in work zones, if necessary.
- Public information relating to affected roadways and intersections shall be provided as appropriate.
- Where it is feasible and safe to do, existing pedestrian and bicycle access and circulation shall be maintained. If access and circulation cannot be maintained, detours shall be designated and posted for pedestrians and bicyclists.
- All construction equipment and materials shall be stored in designated contractor staging areas on or adjacent to the worksite on airport property, in a manner that minimizes obstruction of traffic.
- Locations shall be identified for parking by construction workers, either within the construction zone, or if necessary, at a nearby location with transport provided between the parking location and the worksite.
- Public roadways shall be repaired or restored to their original conditions upon completion of construction.
- The traffic control plan shall conform to the California Manual on Uniform Traffic Control Devices: Part 6, Temporary Traffic Control. Traffic plans may require Caltrans, county, and city review and/or approval.

Improvement Measure I-NO-1 – Provide Noise Insulation in Accordance with an FAA-Approved Noise Insulation Program

The project sponsor shall offer to provide noise insulation to noninsulated homes affected by a change of Community Noise Equivalent Level (CNEL) 1.5 A-weighted decibels (dBA) or higher in areas exposed to CNEL 65 dBA or higher as a result of the proposed project. This insulation shall be provided in accordance with a Federal Aviation Administration-approved noise insulation program.

Improvement Measure I-AO-2 – Implement Additional Fugitive Dust Emissions Reduction Measures

The construction contractor shall implement the following measures during construction to further reduce construction-related fugitive dust emissions:

- All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
- The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities in the same area at any one time shall be limited. Activities shall be phased if feasible to reduce the amount of disturbed surfaces at any one time.
- All trucks and equipment, including tires, shall be washed off prior to leaving the site.

G. PUBLIC NOTICE AND COMMENT

On November 10, 2010, as part of the early notification process, the San Francisco Planning Department and SFO mailed a Notification of Project Receiving Environmental Review, describing the proposed project under environmental review. This notification was mailed to regulatory agencies and stakeholders, including cities and special interest groups.

G.1 COMMENTS RECEIVED IN RESPONSE TO NOTIFICATION OF PROJECT RECEIVING ENVIRONMENTAL REVIEW

One written letter was received in response to the mailed notification that the proposed project was under environmental review. On December 3, 2010 the City of San Bruno Community Development Department submitted a letter requesting assurance that the proposed project would not change the: 1) 14 Code of Federal Regulations (CFR) Part 77 surfaces; and 2) existing noise contours (see Appendix C).¹³³ Topic E.6, Noise, of the Initial Study provides existing and future aircraft noise contours for the no project and proposed project.

¹³³ Aaron Akin, Community Development Director, San Bruno Community Development Department, Letter, November 29, 2010, to Irene Nishimura, San Francisco Planning Department. This document is on file and is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103, as part of Case File No. 2010.0755E.

The following sections describe airport imaginary surfaces and discuss their applicability, as well as potential changes to such surfaces under the proposed project compared to no project conditions.

Response to City of San Bruno's Concerns

SFO has overlying volumes of airspace defined by Title 14: *Aeronautics and Space, Part 77—Safe Efficient Use and Preservation of Navigable Airspace*¹³⁴, which are called “imaginary surfaces” because they are invisible to the human eye. Imaginary surfaces described in Part 77, Section 77.19, *Civil airport imaginary surfaces*¹³⁵, are used to:

- Evaluate the effect of the construction or alteration on (aircraft) operating procedures;
- Determine the potential hazardous effect of the proposed construction or alteration on air navigation;
- Identify mitigating measures to enhance safe air navigation;
- Chart new manmade or natural objects; and
- Identify potential aeronautical hazards in advance, thus preventing or minimizing the adverse impacts to the safe and efficient use of navigable airspace.

With respect to the control of land uses near airports, these civil airport imaginary surfaces are used to identify whether a natural or manmade object is deemed to be an obstacle or an obstruction. If an object penetrates the 14 CFR Part 77 Surface, the Federal Aviation Administration (FAA) must determine if that object represents a hazard to air navigation. The FAA is solely responsible to complete an Aeronautical Study that provides a determination regarding the impact to air navigation. One of three FAA determinations is typically issued:

- No Objection;
- Conditional Determination; or
- Objectionable.

For the purpose of describing the resultant changes in the location and vertical heights of the overlying 14 CFR Part 77, *Civil airport imaginary surfaces*, that would be affected by the proposed extension of Runway 10R and shift of Runways 1L and 1R, the discussions of those respective height changes are limited to the assessment of approach surfaces only.

¹³⁴ Title 14: *Aeronautics and Space, Part 77—Safe Efficient Use and Preservation of Navigable Airspace*. Available online at: <http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&rgn=div5&view=text&node=14:2.0.1.2.9&idno=14>.

¹³⁵ Part 77, Section 77.19, *Civil airport imaginary surfaces*. Available online at: http://rgl.faa.gov/Regulatory_and_Guidance_Library%5CrgFAR.nsf/0/CB4F46AD4C9509B88625781C00592427?OpenDocument.

Approach Surfaces

One of the imaginary surfaces that would be affected when extending any runway at SFO is called the approach surface. It is one of the most critical of the civil airport imaginary surfaces because it is the one that the aircraft uses to make its approach to landing and is established to provide for the safe horizontal and vertical approach to the runway end. The geometric dimensions of each approach surface vary based on the category of each runway and the type of approach available or planned for that runway. The approach surface is the vertical height that the FAA uses to determine obstructions to air navigation.

The approach surface is trapezoidal in shape, begins 200 feet before the physical end of the runway, slopes outward and upward away from the runway end, and provides obstacle avoidance protection to aircraft when using visual approach procedures, or nonprecision or precision instrument approach procedures. The slope of each approach surface varies depending on whether the approach to the runway end is by visual reference only, or by use of electronic navigation (e.g., precision instrument approach).

The visual approach surface is 5,000 feet in length and slopes outward and upward at a rate of 20:1, meaning that for each 20 feet the surface extends outward, the surface rises 1 foot vertically. Using visual approach procedures, pilots must land the aircraft relying only on visual references, without the aid of in-aircraft instruments or other electronic navigational aids. This type of approach is limited to clear weather conditions.

A nonprecision instrument approach surface is 10,000 feet in length and has a 34:1 slope. When supporting precision instrument approach procedures, the approach surface has two separate segments, each having different slopes. The inner segment has a length of 10,000 feet and a 50:1 slope. The outer segment has a length of 40,000 feet and a 40:1 slope. Using instrument approach procedures, pilots use a variety of on-board and external electronic navigational aids to provide horizontal and vertical guidance to the approach end of the runway. Instrument approach procedures are classified as providing either nonprecision instrument or precision instrument navigational capabilities.

Unique to the approach surfaces, specific pre-established vertical separation distances must be maintained between the overlying approach surface and the underlying roadways, interstate highways, or railroads. If penetrations cannot be avoided, the FAA may determine that penetrations of these surfaces can occur, but with mitigating actions.

All efforts should be made to keep natural or manmade objects below these surfaces. To the greatest extent possible, the approach surface should remain clear of all objects, so that nothing can impede the landing of an aircraft during the last segment of the landing, called the final approach.

Change in Overlaying Approach Surface Heights for Runways 10L, 10R, 1L, and 1R

This section describes the resultant change in the overlying height of the 14 CFR Part 77, *Civil airport imaginary approach surfaces*, for Runways 10R, 1L, and 1R under the proposed project. The final approach surfaces are subject to refinement, pending completion of site surveys by certified surveyors and detailed aeronautical photography during subsequent detailed design. Therefore, the analysis of the proposed project provided below is preliminary, based on best available information at the publication of the Preliminary Mitigated Negative Declaration and Initial Study, and is subject to change.

Figures depicting the approach surfaces under the proposed project in both plan and profile views are provided for each (Runways 10L, 10R, 1L, and 1R). As with the approach surfaces, the elevations and surface profiles are preliminary and subject to change upon completion of site surveys.

Runway 10L-28R. Runway 10L, the western end of Runway 10L-28R, is served by a nonprecision instrument approach surface.¹³⁶ As shown on Figure 32 on page 2173, no changes would be made to this runway under the proposed project, and the height of the 34:1 nonprecision instrument approach surface for this runway would not change along any point of its 10,000-foot approach surface length.

Runway 10R-28L. Similar to Runway 10L, Runway 10R, the western end of Runway 10R-28L, is served by a nonprecision instrument approach surface and would be extended approximately 781 feet westward. If the runway end elevation remains the same under the proposed project at 5.9 feet mean sea level (MSL), the points below the 10,000-foot length of the 34:1 nonprecision instrument approach surface would be approximately 23 feet lower than under the no project condition. Figure 33 on page 2195 provides an approximate plan and profile view of both the proposed project and no project conditions for Runway 10R.

Runway 1L-19R. Under the no project condition, Runway 1L, the southern end of Runway 1L-19R is served by a visual approach surface and has its current displaced threshold, 491 feet from the physical end of the runway. Under the proposed project, the runway would be shifted southward by approximately 450 feet, and the distance between the displaced threshold and the end of the Runway 1L would be reduced to 56 feet. If the runway end elevation remains unchanged at 10.3 feet MSL under the proposed project, points below the 5,000-foot length of the 20:1 visual approach surface would be approximately 22.5 feet lower than under the no project condition. Figure 34 on page 2217 provides an approximate plan and profile view of both the proposed project and no project conditions for Runway 1L.

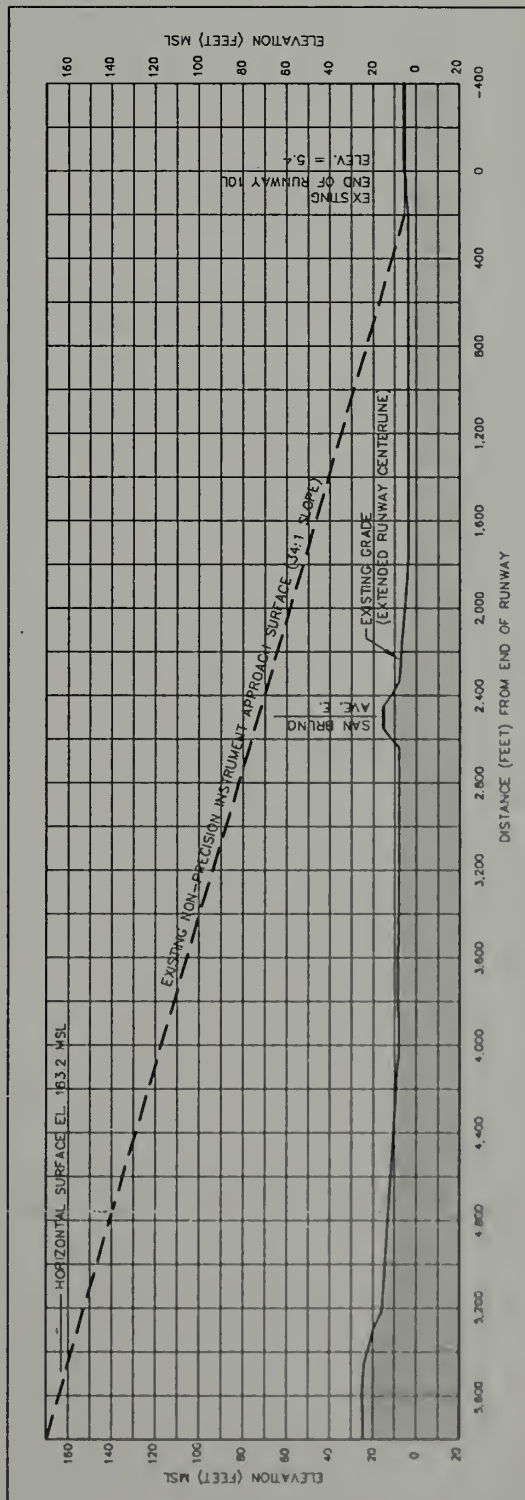
Runway 1R-19L. Under the no project condition, Runway 1R, the southern end of Runway 1R-19L, is served by a visual approach surface and has its current displaced threshold, 238 feet from the physical end of the

¹³⁶ A nonprecision instrument approach is a type of aircraft approach subject to instrument flight rules. A precision instrument provides both vertical and lateral guidance to the pilot. A nonprecision instrument approach provides only vertical guidance to the pilot and is characterized by an approach slope that is lower and more gradual (e.g., 34:1) than a precision approach slope (20:1).

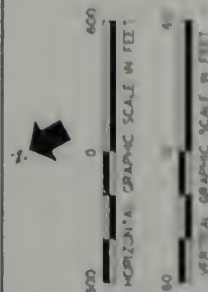


NOTE: 7:1 TRANSITIONAL SURFACES NOT SHOWN

PLAN VIEW



PROFILE VIEW



Source SFO 2011

Figure 32

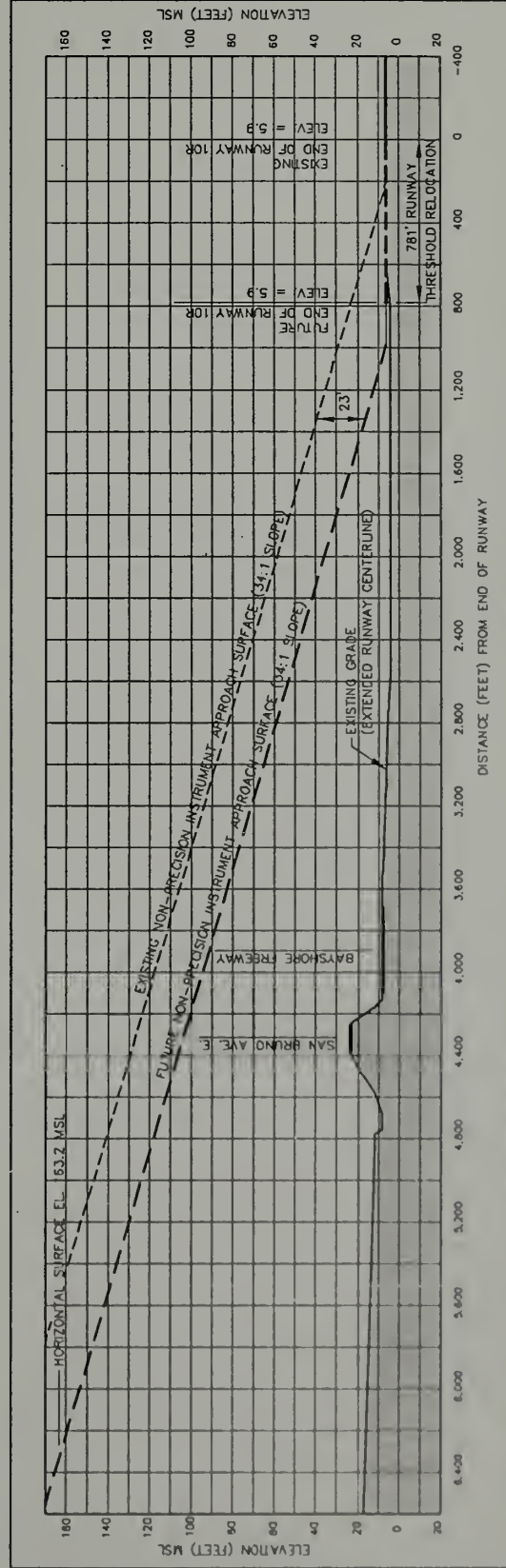
RUNWAY 10L APPROACH SURFACE

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

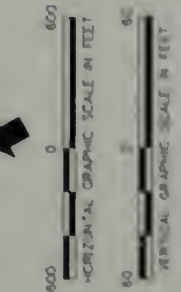
FIGURE 32



PLAN VIEW



PROFILE VIEW



Source: SFO 2011

RUNWAY 10R APPROACH SURFACES

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

FIGURE 33

NOTE: 7:1 TRANSITIONAL SURFACES NOT SHOWN

PLAN VIEW

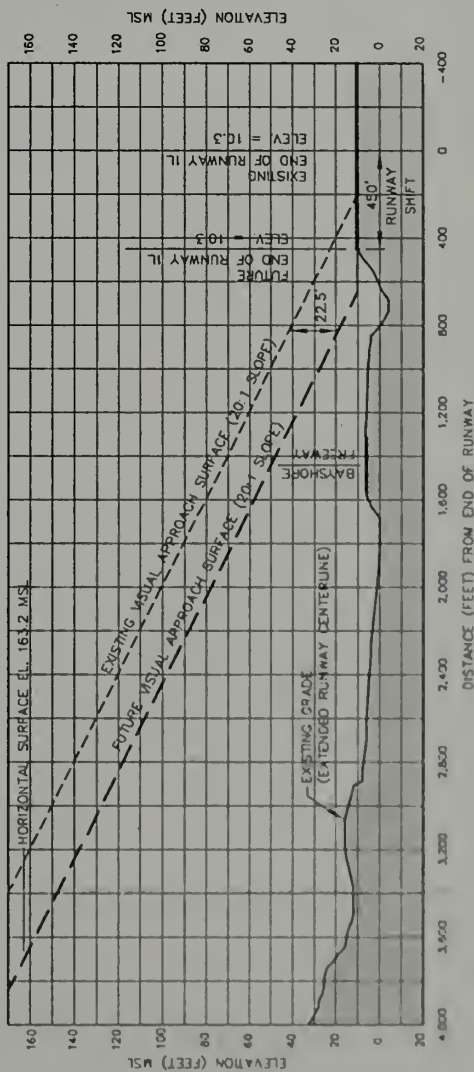


IT'S THE FIRST CHANCE TO WIN A
MAGNIFICENT GRAND PRIZE

100% COTTON

Source SFO 2011

PROFILE VIEW



RUNWAY 1L APPROACH SURFACES

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

FIGURE 34

runway. Under the proposed project, Runway 1R-19L would be shifted by approximately 200 feet southward. The distance between the displaced threshold and the end of the runway would be reduced to 98 feet. If the runway end elevation remains unchanged at 11.3 feet MSL under the proposed project, points below the 5,000-foot length of the 20:1 visual approach surface would be approximately 10.3 feet lower than under the no project condition. Figure 35 on page 225¹⁹ provides an approximate plan and profile view of both the proposed project and no project conditions for Runway 1R.

G.2 WEBSITES

A project website was also established online at <http://www.sforsaprogram.org> to provide background information and details on the SFO RSA Program. The project website is periodically updated to provide project documentation and schedule information. When California Environmental Quality Act (CEQA) documentation is released, electronic copies of these documents will be available from the San Francisco Planning Department's Environmental Planning Cases webpage online at <http://tinyurl.com/sfceqadocs>, a link to which will also be provided from the project website.

G.3 COMMENTS RECEIVED IN RESPONSE TO PRELIMINARY MITIGATED NEGATIVE DECLARATION AND INITIAL STUDY

On July 20, 2011, the Planning Department circulated a Notice of Availability of and Intent to Adopt a Preliminary Mitigated Negative Declaration and Initial Study. Below is a summary of four written letters received from state agencies (see Appendix D), and changes that have been incorporated into this document in response to these letters (with references to where a discussion can be found in this Initial Study). Appendix E includes response letters from the Planning Department to these state agencies.

- The California Department of Fish and Game (CDFG) recommended that a rare plant focused survey be conducted for the SFO RSA Program. The recommended survey was conducted on August 30, 2011, and results were described in a botanical assessment letter report and in Topic E.13, Biological Resources, on pages 135 through 169. Refinements suggested by CDFG were also made to Mitigation Measure M-B1-3 on Initial Study pages 157 through 159. The CDFG also indicated that an Incidental Take Permit would be required if the project has the potential to result in take of longfin smelt. In a response letter to the CDFG, the Planning Department noted continued coordination by the project sponsor with the CDFG to ensure that the project does not result in take (see Appendix E).
- The California Department of Toxic Substances Control (DTSC) questioned past land uses, provided comments on the assessment of sites and facilities that are known, suspected, or likely to contain or store hazardous materials; and noted procedures for assigning oversight by the DTSC or the Regional Water Quality Control Board. In response to the DTSC's comments, a statement regarding past land use previously noted under Impact HZ-2 on Initial Study page 187 was also included in Initial Study Section B, Project Setting, on page 39. In addition, the

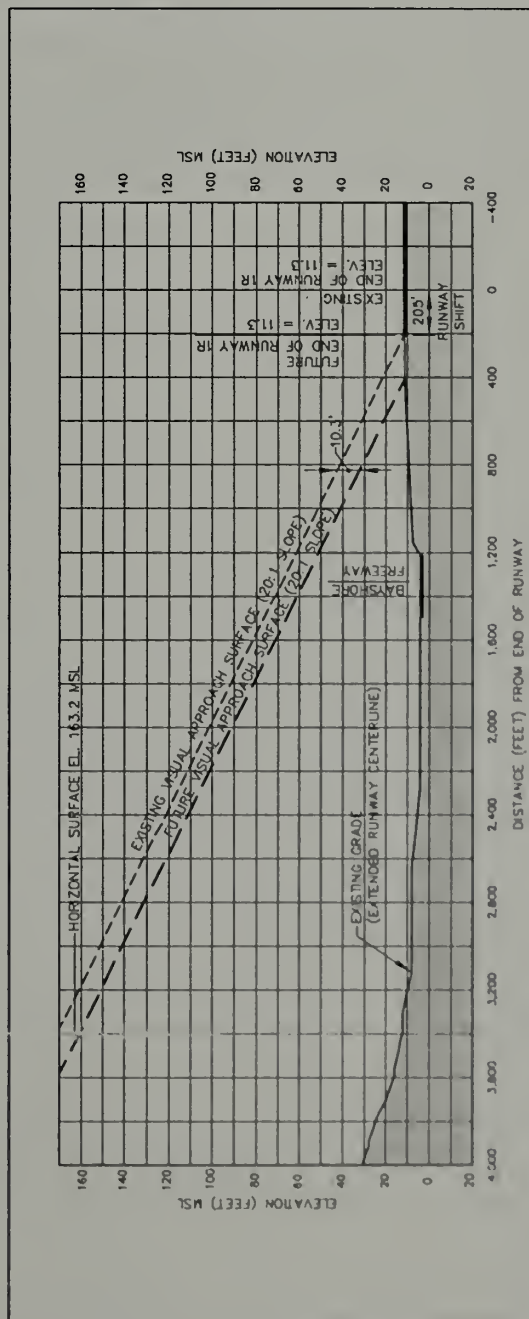
discussion of hazardous waste release sites under Impact HZ-2 on Initial Study page 187 was clarified and Mitigation Measures M-HZ-2a and M-HZ-2b on Initial Study pages 189 through 191 were expanded upon to reflect standard construction procedures implemented for excavation activities at SFO.

- The California Department of Transportation (Caltrans) (Division of Aeronautics) requested to be added to the project distribution list, and indicated that Caltrans District 4 (surface transportation) should be separately notified; indicated that an amended State Airport Permit and consistency finding may be required for the SFO RSA Program; noted safety procedures/ approvals that would need to be followed during construction; and commented on flight paths and potential impacts on noise sensitive uses. The Planning Department verified that both the Caltrans (Division of Aeronautics) and Caltrans District 4 are included on the project distribution list. The need to amend the State Airport Permit has been noted in Section A.5, Project Approvals and Permits, on Initial Study page 35, and is further explained in Section C.2, Required Approvals and Permits, on Initial Study page 45. In a response letter to Caltrans, the Planning Department noted safety procedures and approvals that would need to be followed during construction. A summary of the Initial Study discussion of flight paths and potential impacts on noise-sensitive uses was also included in the response letter to Caltrans, and a copy of the Noise Technical Memorandum prepared for the project was enclosed.
- The California State Clearinghouse and Planning Unit provided a copy of the above-described comment letter from CDFG that was received after the end of the state review period, and encouraged the Planning Department to incorporate CDFG comments into the final environmental document, although not required under CEQA. The Planning Department considered the CDFG comment letter and incorporated changes into this document as described above.

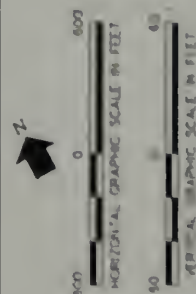


NOTE: 7:1 TRANSITIONAL SURFACES NOT SHOWN

PLAN VIEW



PROFILE VIEW



Source SFO 2011

RUNWAY 1R APPROACH SURFACES

San Francisco International Airport
Runway Safety Area Program IS
San Francisco, California

FIGURE 35

H. REVISIONS TO THE INITIAL STUDY

On July 20, 2011, the Planning Department circulated a Notice of Availability of and Intent to Adopt a Preliminary Mitigated Negative Declaration and Initial Study. The following is a summary of changes that have been incorporated into this document as a result of more detailed project design and agency coordination/permitting efforts that have occurred since circulation. These revisions are in addition to minor editorial corrections and clarifications, as well as changes outlined in Initial Study Section G.3 on pages 223 and 224, which were made in response to written letters received from state agencies.

- The existing electrical substation would be relocated approximately 25 feet northwest of the location originally shown on Figures 10 and 29 on pages 25 and 159 of the Initial Study dated July 20, 2011 (original Initial Study). Initial Study Figures 10 and 29 on pages 25 and 161 have been revised to reflect the new proposed location of the relocated electrical substation. The description of the electrical substation project component on page 34 of the original Initial Study and the analysis of potential impacts associated with relocation of the electrical substation would not change as a result of this project design change.
- New pilings for runway approach lighting system installations would be driven with an impact hammer rather than a vibratory hammer, as stated on pages 31, 33, 76, 101, and 144 of the original Initial Study. It is expected that a vibratory hammer would still be used to reconstruct the Airport's sea wall, as described on revised Initial Study page 102. Constructability reviews by Airport engineers and construction contractors determined that the use of a vibratory hammer is not feasible based on the type of piles (solid timber rather than hollow steel piles) to be used, the specified depth of the piles, and bottom substrate conditions at the pile driving locations. This change to the project would not alter the analysis or level of significance of airborne noise and vibration impacts outlined under Impact NO-2 on Initial Study page 102. Based on ongoing coordination with the California Department of Fish and Game, and as confirmed by the National Marine Fisheries Service, as well as additional technical noise analysis related to underwater sound pressure levels, use of an impact hammer is not expected to result in additional or new impacts to special-status fish species. Therefore, the analysis of potential impacts to special-status fish species under Impact BI-1 on Initial Study page 147, or the effectiveness of Mitigation Measure M-BI-1 on Initial Study pages 148 and 149, would not be altered. Revisions to reflect this project change have been made to the following sections of the revised Initial Study: Section A.4 on pages 31 and 33; Background section of Topic E.6, Noise, on page 77; Impact NO-2 on page 102; and Mitigation Measure M-BI-1 on pages 148 and 202.
- Revisions were made to Initial Study Section E.13, Biological Resources, on pages 141 through 147, to reflect the August 3, 2011, U.S. Army Corps of Engineers verification of jurisdictional areas within the project site.

- Section G.3 on revised Initial Study pages 223 and 224 was added to provide a summary of written letters received from state agencies following circulation of Notice of Availability of and Intent to Adopt a Preliminary Mitigated Negative Declaration and Initial Study. Appendices D and E were added to include the agency comment letters and Planning Department response letters. This Section H was added to the revised Initial Study to provide a summary of changes that have been incorporated into this document as a result of more detailed project design and agency coordination/permitting efforts that have occurred since circulation. Original Initial Study Sections H and I on pages 221 and 222 were renumbered Sections I and J on pages 229 and 230 of the revised Initial Study.

H.I. DETERMINATION

On the basis of this Initial Study:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental documentation is required.



Bill Wycko
Environmental Review Officer
for
John Rahaim
Director of Planning

DATE July 20, 2011

I.J. INITIAL STUDY AUTHORS AND PROJECT SPONSOR TEAM**Initial Study Authors**

Planning Department, City and County of San Francisco

Environmental Planning

1650 Mission Street, Suite 400

San Francisco, CA 94103

Environmental Review Officer: Bill Wycko

Senior Environmental Planner: Lisa Gibson

Planner: Irene Nishimura

Project Sponsor

San Francisco International Airport

Bureau of Planning and Environmental Affairs

P.O. Box 8097

San Francisco, CA 94128

Manager of Environmental Affairs: Nixon Lam

Senior Environmental Planner: Audrey Park

Planner: John Kim

Initial Study Consultants

URS Corporation

Post Montgomery Center

One Montgomery Street, Suite 900

San Francisco, CA 94104-4538

Project Manager: William Fehring, Ph.D.

Deputy Project Manager: Christopher Wolf

Senior Technical Reviewer: Denise Heick

BridgeNet International (Noise)

20201 SW Birch Street, Suite 250

Newport Beach, CA 92660

Paul Dunholter, P.E.

KB Environmental, Inc. (Air Quality and Greenhouse Gases)

P.O. Box 385

Indianola, WA 98342

Michael Kenney

Michael Ratte

LSA Associates, Inc. (Biological Resources)

157 Park Place

Pt. Richmond, CA 94801

Ross Dobberteen, Ph.D.

Sean O'Brien

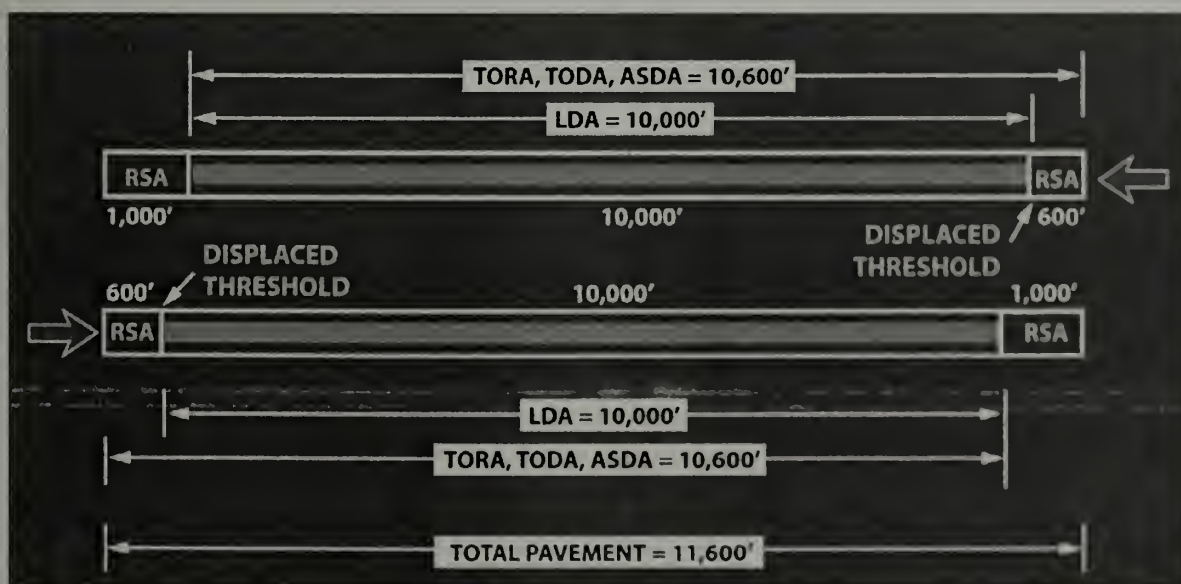
**APPENDIX A
DECLARED DISTANCES**

Declared distances at airports are a mechanism by which specific lengths of runway pavement are identified for use in aircraft operations. Declared distances are incorporated into the Operations Specifications of commercial aircraft operators that are part of the air carrier certificates and operations certificates issued by FAA under 14 CFR Part 119, as well as into the internal operations manuals of those operators. Pilots of commercial aircraft are required to comply with such specifications and manuals.

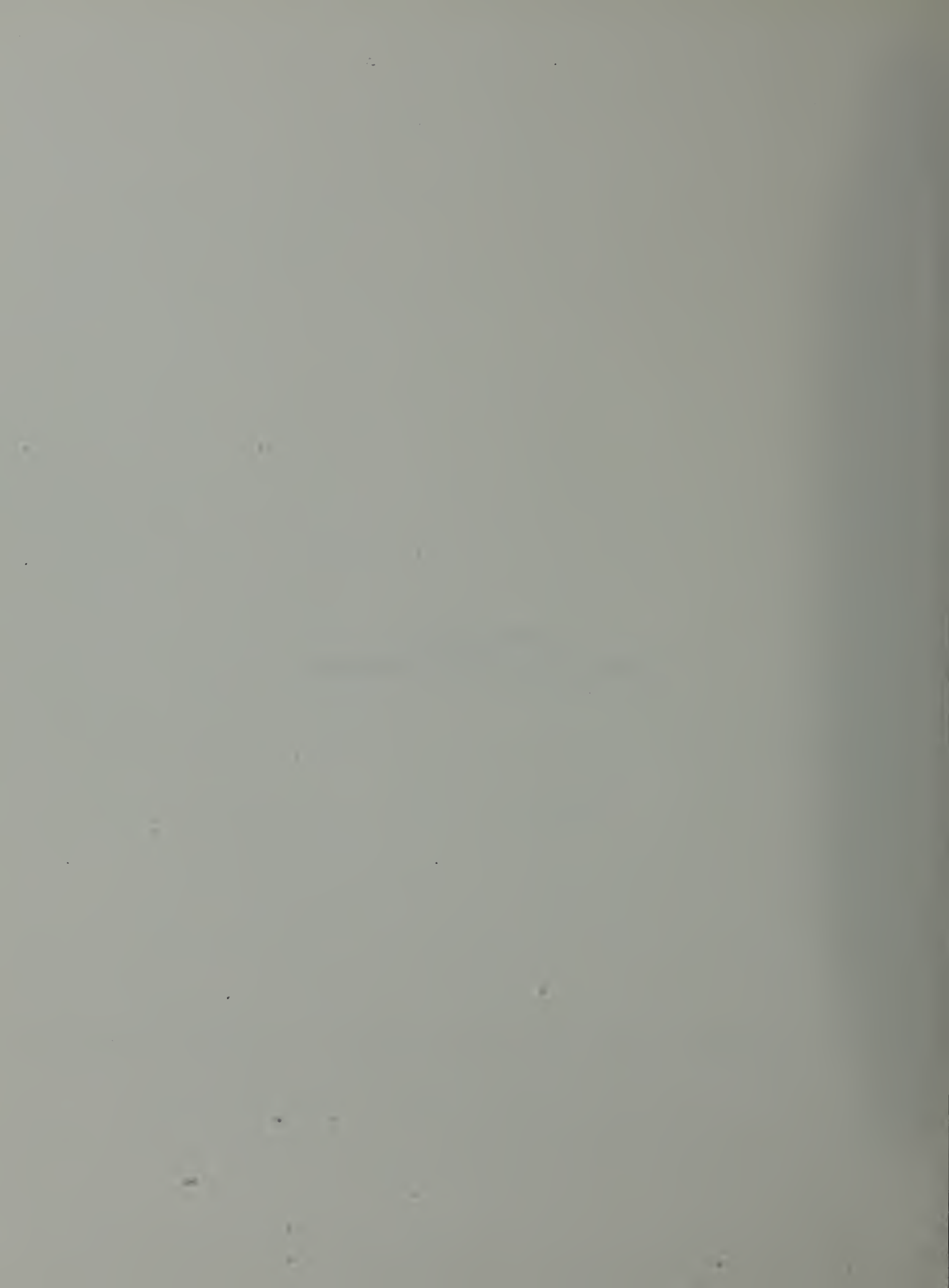
The specified distance available for a particular operation such as landing may be different in each direction on the same runway pavement. The FAA defines four declared distances:

- **Takeoff Run Available (TORA)** – the runway length declared available and suitable for satisfying takeoff run requirements. The TORA is measured from the start of takeoff to a point 200 feet from the beginning of the departure Runway Protection Zone.
- **Takeoff Distance Available (TODA)** – this distance comprises the TORA plus the length of any remaining runway or clearway beyond the far end of the TORA.
- **Accelerate-Stop Distance Available (ASDA)** – the runway plus stopway length declared available and suitable for the acceleration and deceleration of an aircraft that must abort its takeoff. A stopway is an area beyond the takeoff runway able to support the airplane during an aborted takeoff, without causing structural damage to the airplane.
- **Landing Distance Available (LDA)** – the runway length that is declared available and suitable for satisfying aircraft landing distance requirements.

The figure below illustrates how declared distances allow a runway pavement length of 11,600 feet to provide a usable runway length of 10,000 feet for landing and 10,600 feet for takeoffs in both directions while still providing the FAA-required runway safety area dimensions of 600 feet prior to the landing threshold and 1,000 feet beyond the runway end.



APPENDIX B
SPECIAL-STATUS SPECIES



Appendix B
Special-Status Species Potentially Occurring in the Vicinity of the
San Francisco International Airport, San Mateo County, California

Species	Status* (Federal/State/ Other)	Habitat	Potential for Occurrence
Plants			
<i>Acanthomintha duttonii</i> San Mateo thorn-mint	FE/SE/1B	Serpentine soils of chaparral and grassland in San Mateo County.	None: Serpentine soils/chaparral not present.
<i>Allium peninsulare</i> var. <i>franciscanum</i> Franciscan onion	–/–/1B	Cismontane woodland, valley and foothill grassland, clay soils, often on serpentine, dry hillsides.	None: Clay/soils not present.
<i>Amsinckia lunaris</i> Bent-flowered fiddleneck	–/–/1B	Coastal bluff scrub, cismontane woodland, valley and foothill grassland.	None: Scrub and woodland not present. Infield grasslands on airfield too disturbed.
<i>Arctostaphylos andersonii</i> Anderson's manzanita	–/–/1B	Openings and edges in broadleaved upland forest, chaparral, and North Coast coniferous forest.	None: Forested habitat not present.
<i>Arctostaphylos franciscana</i> Franciscan manzanita	–/–/1B	Serpentine outcrops in chaparral.	None: Serpentine outcrops/not present.
<i>Arctostaphylos imbricate</i> San Bruno Mountain manzanita	–/–/1B	Mostly known from a few sandstone outcrops in Chaparral; also in coastal scrub.	None: Species distribution limited to San Bruno Mountain. Chaparral and scrub not present.
<i>Arctostaphylos montana</i> (=hookeri) ssp. <i>ravenii</i> Presidio manzanita	FE/SE/1B	Open, rocky serpentine slopes in chaparral, coastal prairie, and coastal scrub.	None: Rocky, serpentine slopes not present.
<i>Arctostaphylos montaraensis</i> Montara manzanita	–/–/1B	Slopes and ridges in chaparral and coastal scrub.	None: Chaparral/scrub not present.
<i>Arctostaphylos pacifica</i> Pacific manzanita	–/–/1B	Coastal scrub.	None: Coastal scrub not present.
<i>Arctostaphylos regismontana</i> Kings Mountain manzanita	–/–/1B	Granitic or sandstone outcrops in broadleaved upland forest, chaparral, and North Coast coniferous forest.	None: Granitic or sandstone outcrops not present.

Appendix B
Special-Status Species Potentially Occurring in the Vicinity of the
San Francisco International Airport, San Mateo County, California (Continued)

Species	Status* (Federal/State/ Other)	Habitat	Potential for Occurrence
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i> Coastal marsh milk-vetch	–/–/1B	Coastal dunes, coastal salt marsh.	None: Coastal dunes and coastal salt marsh not present.
<i>Astragalus tener</i> var. <i>tener</i> Alkali milk-vetch	–/–/1B	Low ground, alkali flats, and flooded lands in annual grassland or in playas or vernal pools.	None: Alkaline wetlands or vernal pools not present.
<i>Centromadia parryi</i> ssp. <i>parryi</i> Pappose tarplant	–/–/1B	Vernally mesic, often alkaline sites in chaparral, coastal prairie, meadows and seeps, coastal salt marshes and swamps, valley and foothill grassland.	None: Alkaline soils not present.
<i>Chorizanthe cuspidata</i> var. <i>cuspidata</i> San Francisco Bay spineflower	–/–/1B	Sandy soil on terraces and slopes in coastal bluff scrub, coastal dunes, coastal prairie, and coastal scrub.	None: Sandy soils not present.
<i>Chorizanthe robusta</i> var. <i>robusta</i> Robust spineflower	FE/–/1B	Sandy terraces and bluffs in woodland, coastal dunes, and coastal scrub.	None: Sandy soils not present.
<i>Cirsium andrewsii</i> Franciscan thistle	–/–/1B	Broadleaved upland forest, coastal bluff scrub, coastal prairie, coastal scrub; sometimes in serpentine seeps.	None: Forest, scrub, and coastal prairie not present.
<i>Cirsium fontinale</i> var. <i>fontinale</i> Crystal Springs fountain thistle	FE/SE/1B	Serpentine seeps and grassland. 90 to 180 m.	None: Serpentine seeps not present; project area too low in elevation.
<i>Cirsium occidentale</i> var. <i>compactum</i> Compact cobwebby thistle	–/–/1B	On dunes and on clay in chaparral; also in grassland, coastal prairie, coastal scrub.	None: Dunes and clay soils not present.
<i>Collinsia multicolor</i> San Francisco collinsia	–/–/1B	On decomposed shale (mudstone) mixed with humus in closed-cone coniferous forest or coastal scrub.	None: Coniferous forest or coastal scrub not present.
<i>Cordylanthus maritimus</i> ssp. <i>palustris</i> Point Reyes bird's-beak	–/–/1B	Usually in salt marsh with <i>Salicornia</i> , <i>Distichlis</i> , <i>Jaumea</i> , <i>Spartina</i> , etc.	None. Only known to occur in North Bay, probably extirpated from South Bay. Surveys conducted at Bay Front Park in 2000 did not find this species (URS, 2001).

Appendix B
Special-Status Species Potentially Occurring in the Vicinity of the
San Francisco International Airport, San Mateo County, California (Continued)

Species	Status* (Federal/State/ Other)	Habitat	Potential for Occurrence
<i>Dirca occidentalis</i> Western leatherwood	–/–/1B	On brushy slopes, mesic sites; mostly in mixed evergreen and foothill woodland communities; broadleaved upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, northern coast coniferous forest, riparian forest, riparian woodland.	None: Woodland or forested habitats not present.
<i>Eriophyllum latilobum</i> San Mateo woolly sunflower	FE/SE/–	Shaded moist sites on steep grassy or sparsely wooded slopes. Grows particularly well under or adjacent to coast live oaks.	None: Known from only two occurrences in San Mateo County (CNPS, 2011). Steep grassy or woodland slopes not present.
<i>Fritillaria biflora</i> var. <i>ineziana</i> Hillsborough chocolate lily	–/–/1B	Cismontane woodland, valley and foothill grassland; serpentine soils.	None: No serpentine soils in project area.
<i>Fritillaria liliacea</i> Fragrant fritillary	–/–/1B	Coastal scrub, valley and foothill grassland, coastal prairie, often on serpentine, usually clay soil.	None: Serpentine and/or clay soils not present.
<i>Gilia capitata</i> ssp. <i>chamissonis</i> Blue coast gilia	–/–/1B	Coastal dunes and coastal scrub.	None: Coastal dunes and scrub not present.
<i>Grindelia hirsutula</i> var. <i>maritime</i> San Francisco gumplant	–/–/1B	Sandy or serpentine slopes, sea bluffs.	None: Sandy or serpentine slopes not present.
<i>Helianthella castanea</i> Diablo helianthella	–/–/1B	Usually in chaparral/oak woodland interface in rocky, azonal soils, often in shade; broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland.	None: Rocky soils not present.
<i>Hemizonia congesta</i> ssp. <i>congesta</i> Pale yellow hayfield tarplant	–/–/1B	Valley and foothill grassland, sometimes on roadsides.	None: Tarplants not known to occur on airfield due to lack of suitable habitat.
<i>Hesperervax parsiflora</i> var. <i>brevifolia</i> Short-leaved evax	–/–/1B	Sandy bluffs and flats in coastal bluff scrub and coastal dunes.	None: Sandy soils not present.

Appendix B
Special-Status Species Potentially Occurring in the Vicinity of the
San Francisco International Airport, San Mateo County, California (Continued)

Species	Status* (Federal/State/ Other)	Habitat	Potential for Occurrence
<i>Hesperolinon congestum</i> Marin dwarf-flax (=western flax)	FT/ST/–	Serpentine soils in barrens, grasslands, and chaparral.	None: Serpentine soils not present.
<i>Horkelia cuneata</i> ssp. <i>sericea</i> Kellogg's horkelia	–/–/1B	Sandy or gravelly openings in closed-cone coniferous forest, maritime chaparral, coastal dunes, and coastal scrub.	None: Coniferous forest and coastal habitats not present.
<i>Horkelia marinensis</i> Point Reyes horkelia	–/–/1B	Sandy flats and dunes near coast, in grassland or scrub plant communities.	None: Sandy soils not present.
<i>Layia carnosa</i> Beach layia	FE/SE/–	On sparsely vegetated, semi-stabilized dunes, usually behind foredunes.	None: Coastal sand dunes not present.
<i>Leptosiphon croceus</i> Coast yellow leptosiphon	–/–/1B	Coastal bluff scrub, coastal prairie.	None: Coastal bluff and prairie not present.
<i>Leptosiphon rosaceus</i> Rose leptosiphon	–/–/1B	Coastal bluff scrub.	None: Coastal bluff scrub not present.
<i>Lessingia arachnoidea</i> Crystal Springs lessingia	–/–/1B	Grassy slopes on serpentine rock, sometimes on roadsides; coastal sage scrub, valley and foothill grassland, cismontane woodland.	None: Serpentine rock not present.
<i>Lessingia germanorum</i> San Francisco lessingia	FE/SE/1B	Old coastal sand deposits in sparse, relatively open dune scrub, coastal scrub, and grassland. Limited to six sites in the Presidio of San Francisco and one site in Daly City.	None: Sandy substrates not present. Project area outside known distribution of species.
<i>Malacothamnus aboriginum</i> Indian Valley bush-mallow	–/–/1B	Granitic outcrops and sandy bare soil, often in disturbed soils; cismontane woodland, chaparral.	None: Woodland and chaparral habitats not present.
<i>Malacothamnus arcuatus</i> Arcuate bush-mallow	–/–/1B	Gravelly alluvium in chaparral.	None: Chaparral not present.
<i>Malacothamnus davidsonii</i> Davidson's bush-mallow	–/–/1B	Sandy washes in coastal scrub, riparian woodland, chaparral.	None: Sandy washes not present.

Appendix B
Special-Status Species Potentially Occurring in the Vicinity of the
San Francisco International Airport, San Mateo County, California (Continued)

Species	Status* (Federal/State/ Other)	Habitat	Potential for Occurrence
<i>Malacothamnus hallii</i> Hall's bush-mallow	–/–/1B	Chaparral, some populations on serpentine.	None: Chaparral not present.
<i>Monolopia gracilis</i> Woodland woollythreads	–/–/1B	Serpentine openings in chaparral, valley and foothill grasslands, cismontane woodland, broadleaved upland forest, and North Coast coniferous forest.	None: Serpentine soils not present.
<i>Pentachaeta bellidiflora</i> White-rayed pentachaeta	FE/SE/–	Open dry rocky slopes in grassland, often on slopes derived from serpentine bedrock.	None: Rocky, serpentine slopes not present.
<i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i> Choris' popcorn-flower	–/–/1B	Mesic sites in chaparral, coastal scrub, coastal prairie.	None: Chaparral, coastal scrub, coastal prairie not present.
<i>Polemonium carneum</i> Oregon polemonium	–/–/2	Coastal prairie, coastal scrub, lower montane coniferous forest.	None: Coastal prairie, coastal scrub, coniferous forest not present.
<i>Potentilla hickmanii</i> Hickmans' potentilla (=cinquefoil)	FE/SE/–	Coastal bluff scrub, closed-cone coniferous forest, meadows and seeps, marshes and swamps.	None: Seasonal wetlands on airfield too disturbed.
<i>Sanicula maritime</i> Adobe sanicle	–/–/1B	Moist clay or ultramafic soils in meadows and seeps, valley and foothill grassland, chaparral, and coastal prairie.	None: Moist clay or ultramafic soils not present.
<i>Silene verecunda</i> ssp. <i>verecunda</i> San Francisco campion	–/–/1B	Coastal scrub, valley and foothill grassland, coastal bluff scrub, chaparral, coastal prairie; often on mudstone or shale, sometimes on serpentine;.	None: Mudstone or shale not present.
<i>Suaeda californica</i> California seablite	FE/–/1B	Margins of coastal salt marshes.	None: Last recorded in SFO vicinity (Bay Farm Island) in 1943 (CDFG, 2010). Currently only known to occur in Morro Bay and Cayucos Point in San Luis Obispo County (CNPS, 2011). Surveys conducted at Bay Front Park in 2000 did not find this species (URS, 2001).

Appendix B
Special-Status Species Potentially Occurring in the Vicinity of the
San Francisco International Airport, San Mateo County, California (Continued)

Species	Status* (Federal/State/ Other)	Habitat	Potential for Occurrence
<i>Trifolium hydrophilum</i> Saline clover	-/-1B	Mesic, alkaline sites in marsh, swamps, valley and foothill grassland, vernal pools.	None: Alkaline wetlands not present.
<i>Triphysaria floribunda</i> San Francisco owl's-clover	-/-1B	Coastal prairie, coastal scrub, valley and foothill grassland; usually on serpentine soils.	None: Serpentine soils not present. Surveys conducted at Bay Front Park in 2000 did not find this species (URS, 2001).
<i>Trisetella californica</i> Coastal triquetrella	-/-1B	Grows within 30 meters of the coast in coastal scrub, grasslands, and in open gravels on roadsides, hillsides, and rocky slopes.	None: Grasslands on airfield too disturbed.
Invertebrates			
<i>Callophrys mossii bayensis</i> San Bruno elfin butterfly	FE/-/-	Coastal scrub in San Mateo County. Colonies located on steep north-facing slopes within fog belt. Dependent on <i>Sedum spathulifolium</i> for larval host plant.	None: Coastal scrub with <i>Sedum spathulifolium</i> not present.
<i>Euphydryas editha bayensis</i> Bay checkerspot butterfly	FT/-/-	Native grasslands on serpentine soils in Bay Area; dependent on host plants <i>Plantago erecta</i> (primary), <i>Castilleja densiflora</i> , and <i>C. exserta</i>	None: Native grasslands with serpentine soils not present.
<i>Icarica icarioides missionensis</i> Mission blue butterfly	FE/-/-	Coastal grassland and chaparral between 210 and 360 m elevation. Known colonies range from Fort Baker (Marin Co.) to Sweeny Ridge (San Mateo Co.). Larval host plants include <i>Lupinus albus</i> , <i>L. formosus</i> , and <i>L. variicolor</i> .	None: Coastal grassland and chaparral not present. Project area too low in elevation.
<i>Speyeria callippe callippe</i> Callippe silverspot butterfly	FE/-/-	Grassy hilltops and ridges at San Bruno Mountain and Sign Hill (San Mateo Co.), in the hills near Pleasanton (Alameda Co.), at Sears Point (Sonoma Co.), and in the hills between Vallejo and Cordelia.	None: Project area outside known range of species.

Appendix B
Special-Status Species Potentially Occurring in the Vicinity of the
San Francisco International Airport, San Mateo County, California (Continued)

Species	Status* (Federal/State/ Other)	Habitat	Potential for Occurrence
<i>Speyeria zerene myrtleae</i> Myrtle's silverspot butterfly	FE/-/-	Coastal terrace prairie, coastal bluff scrub, and associated grasslands in western Marin and southwestern Sonoma Counties. Extirpated south of Golden Gate.	None: Project area outside known range of species.
Fish			
<i>Acipenser medirostris</i> Green sturgeon (southern DPS)	FT/-/CSC	Oceanic waters, bays, and estuaries along the west coast of North America.	May occur: Individuals may occasionally be present in San Francisco Bay waters adjacent to SFO.
<i>Eucyclogobius newberryi</i> Tidewater goby	FE/-/-	Brackish shallow lagoons and lower stream reaches with still, but not stagnant, water	None: Species considered extirpated from San Francisco Bay (Moyle, 2002).
<i>Hypomesus transpacificus</i> Delta smelt	FT/ST/-	Brackish river channels and tidally influenced backwater sloughs of Sacramento-San Joaquin Delta.	None: Project area outside known range of species.
<i>Mylopharodon conocephalus</i> Hardhead	-/-/CSC	Clear, deep pools with sand-gravel-boulder bottoms and slow water velocity; not found where exotic centrarchids predominant; low to mid-elevation streams in the Sacramento-San Joaquin Drainage and in the Russian River.	None: Freshwater streams not present. Only record in vicinity from Lake Merced in San Francisco.
<i>Oncorhynchus kisutch</i> Coho salmon (central California coast ESU)	FE/-/-	Anadromous: spawns in coastal streams in fall and winter.	None: None recorded in San Francisco Estuary since early to mid-1980s (Leidy, 2007).
<i>Oncorhynchus mykiss</i> Steelhead (central California coast DPS)	FT/-/-	Anadromous: spawns in coastal streams in fall and winter; occurs in small numbers in Central Bay.	May occur: Species likely occurs intermittently in San Francisco Bay waters adjacent to SFO.
<i>Oncorhynchus mykiss</i> Steelhead (Central Valley DPS)	FT/-/-	Sacramento and San Joaquin Rivers and their tributaries.	None: Project area outside known range of this DPS.
<i>Oncorhynchus tshawytscha</i> Chinook salmon (Central Valley spring-run ESU)	FT/ST/-	Anadromous: spawns in Sacramento River system; occurs in small numbers in Central Bay.	May occur: Individuals may occasionally be present in San Francisco Bay waters adjacent to SFO.

Appendix B
Special-Status Species Potentially Occurring in the Vicinity of the
San Francisco International Airport, San Mateo County, California (Continued)

Species	Status* (Federal/State/ Other)	Habitat	Potential for Occurrence
<i>Oncorhynchus tshawytscha</i> Chinook salmon (Sacramento River winter-run ESU ¹)	FE/SE/-	Anadromous: spawns in Sacramento River system; occurs in small numbers in Central Bay.	May occur: Individuals may occasionally be present in San Francisco Bay waters adjacent to SFO.
<i>Spirinchus thaleichthys</i> Longfin smelt	-/ST/-	Anadromous: found in California's bay, estuary, and near shore environments, including the San Francisco Bay Estuary.	May occur: Ranges widely within southern and central San Francisco Bay (Moyle, 2002), and therefore may occur in San Francisco Bay waters adjacent to SFO.
Amphibians			
<i>Ambystoma californiense</i> California tiger salamander	FT/ST/CSC	Vernal pools, seasonal ponds, stock ponds, and associated grasslands.	None: No known occurrences in SFO vicinity. Ongoing maintenance and fill substrate precludes occurrence within seasonal wetlands on airfield.
<i>Rana draytonii</i> California red-legged frog	FT/-/CSC	Ponds, streams, drainages and associated uplands.	None: Known to occur on West-of-Bayshore property west of U.S. Highway (U.S. 101) but has never been observed nor is expected to occur east of U.S. 101 due to significant physical barriers to dispersal and lack of suitable aquatic/upland habitat.
Reptiles			
<i>Actinemys marmorata</i> Western pond turtle	-/-/CSC	Ponds, streams, drainages, and associated uplands.	None: South Oxidation Pond not suitable due to lack of year-round water and nearby sandy soils for egg-laying.
<i>Thamnophis sirtalis tetrataenia</i> San Francisco garter snake	FE/SE/CFP	Freshwater marshes, ponds, and slow-moving streams in San Mateo County and extreme northern Santa Cruz County; prefers dense cover and water depths of at least 1 foot.	None: Known to occur on West-of-Bayshore property west of U.S. 101 but has never been observed nor is expected to occur east of U.S. 101 due to significant physical barriers to dispersal and lack of suitable aquatic/upland habitat.

Appendix B
Special-Status Species Potentially Occurring in the Vicinity of the
San Francisco International Airport, San Mateo County, California (Continued)

Species	Status* (Federal/State/ Other)	Habitat	Potential for Occurrence
Birds			
<i>Aquila chrysaetos</i> Golden eagle	–/–/CFP	Rolling foothills and mountain areas. Nests in cliff-walled canyons or large trees in open areas.	Known to Occur: Individual observed over airfield (west of Superbay) by LSA in 2005 was likely an occasional visitor. Regular occurrence unlikely due to lack of suitable nearby nest sites and species' uncommon status.
<i>Asio flammeus</i> Short-eared owl	–/–/CSC	Salt- and freshwater marshes, grasslands, open treeless areas with low perches and dense vegetation for roosting and nesting.	May occur: May occasionally forage over tidal marsh but unlikely to nest due to small size of marsh and adjacent disturbance.
<i>Athene cunicularia</i> Burrowing owl	–/–/CSC	Open, dry grasslands that contain abundant small mammal (e.g., California ground squirrel) burrows.	May occur: Wintering and/or migrating individuals may occasionally roost in riprap along airfield shoreline but absence of ground squirrel burrows over most of airfield likely precludes long-term use or breeding.
<i>Brachyramphus marmoratus</i> Marbled murrelet	FT/SE/–	Old-growth coniferous forests near the coast. Requires trees with large branches or deformities that provide nest platforms.	None: Old-growth coniferous forest not present.
<i>Charadrius alexandrinus nivosus</i> Western snowy plover	FT/–/CSC	Sandy beaches, salt ponds, and salt pond levees. Needs sandy, gravelly, or friable soils for nesting.	None: Suitable habitat not present. No known nesting locations in project vicinity.
<i>Circus cyaneus</i> Northern harrier	–/–/CSC	Meadows, grasslands, open rangeland, and fresh or saltwater marshes.	May occur: Infields between runways and tidal marsh provide suitable foraging habitat. Unlikely to nest in tidal marsh due to small size and adjacent disturbance.

Appendix B
Special-Status Species Potentially Occurring in the Vicinity of the
San Francisco International Airport, San Mateo County, California (Continued)

Species	Status* (Federal/State/ Other)	Habitat	Potential for Occurrence
<i>Elanus leucurus</i> White-tailed kite	-I-/CFP	Forages for small mammals in grassland, high salt marsh, and along grassy roadsides; nests in tall trees near open areas.	Known to Occur: Has been observed foraging over airfield by both LSA and Albion Environmental (2010). Infields between runways and tidal marsh provide suitable foraging habitat but no suitable nest sites in or adjacent to project area.
<i>Falco peregrinus anatum</i> American peregrine falcon	-I-/CFP	Open country, mountains, and sea coasts; nests on high cliffs, bridges, and buildings.	May occur: Suitable nest sites not present but may occasionally forage along airfield shoreline and over tidal marsh and mudflats.
<i>Geothlypis trichas sinuosa</i> San Francisco common yellowthroat	-I-/CSC	Fresh- and saltwater marshes; nests in tall grasses, tule patches, and willows.	Known to occur: Observed in tidal marsh by Spautz (2007) and McBroom (2008). Likely breeds within tidal marsh.
<i>Laterallus jamaicensis coturniculus</i> California black rail	-I-ST/CFP	Freshwater marshes, wet meadows, and shallow margins of salt marshes bordering larger bays, frequents marshes dominated by pickleweed.	None: Tidal marsh too narrow for adequate high and transitional marsh vegetative cover for high-tide refugia. Species very rare and not known to breed in South Bay.
<i>Melospiza melodia pusillula</i> Alameda song sparrow	-I-/CSC	Salt marshes, pickleweed (<i>Salicornia</i> sp.) marshes. Nests low in gumplant (<i>Grindelia</i> sp.) and pickleweed.	Known to occur: Observed in tidal marsh by Spautz (2007), McBroom (2008), and LSA (Ricketts, pers. obs.). Likely breeds within tidal marsh.
<i>Passerculus sandwichensis alaudinus</i> Bryant's savannah sparrow	-I-/CSC	Nests and forages in salt marsh and adjacent ruderal habitat, and moist grasslands in the fog belt, but has also be found in dry grasslands back from the coast.	Known to occur: Observed in tidal marsh by Spautz (2007) and McBroom (2008). Likely breeds in upper tidal marsh and adjacent uplands.

Appendix B
Special-Status Species Potentially Occurring in the Vicinity of the
San Francisco International Airport, San Mateo County, California (Continued)

Species	Status* (Federal/State/ Other)	Habitat	Potential for Occurrence
<i>Rallus longirostris obsoletus</i> California clapper rail	FE/SE/CFP	Tidal salt marshes with sloughs and cordgrass (<i>Spartina</i> sp.).	Known to occur: LSA heard four individuals calling in tidal marsh southeast of Runway 1R on October 12, 2010. Field surveys conducted for the San Francisco Estuary Invasive <i>Spartina</i> Project detected individuals in same marsh in 2007, 2008 and 2009 (Spautz, 2007; McBroom, 2008, 2009).
<i>Riparia riparia</i> Bank swallow	–/ST/–	Riparian habitat; nests in banks associated with streams, rivers, and lakes.	None: Vertical banks or cliffs with fine-textured soils not present.
<i>Sterna antillarum browni</i> California least tern	FE/SE/CFP	Sandy beaches, alkali flats, hard-pan surfaces (salt ponds).	Unlikely: Migrating individuals may rarely forage over San Francisco Bay waters adjacent to project area, but regular airfield disturbance precludes nesting. No known nest colonies in project vicinity.
Mammals			
<i>Antrozous pallidus</i> Pallid bat	–/–/CSC	Deserts, grasslands, shrublands, woodlands, and forests; most commonly found in open, dry habitats with rocky areas for roosting.	None: Suitable roost sites not present.
<i>Neotoma fuscipes annectens</i> San Francisco dusky-footed woodrat	–/–/CSC	Forest habitats of moderate canopy and moderate to dense understory; may prefer chaparral and redwood habitats; constructs nests of shredded grass, leaves, and other material and may be limited by availability of nest building materials.	None: Forested habitat not present.

Appendix B
Special-Status Species Potentially Occurring in the Vicinity of the
San Francisco International Airport, San Mateo County, California (Continued)

Species	Status* (Federal/State/ Other)	Habitat	Potential for Occurrence
<i>Reithrodontomys raviventris</i> Salt marsh harvest mouse	FE/SE/CFP	Tidal salt marshes of San Francisco Bay and its tributaries; requires tall, dense pickleweed (<i>Salicornia</i> sp.) for cover.	None: No known records in SFO vicinity. Tidal marsh southeast of airfield is not suitable due to small size/linear configuration, lack of suitable high-tide refugia, proximity to disturbance and predators, and isolation from known populations to the south.
<i>Taxidea taxus</i> American badger	—/—/CS	Grassland, scrub, and woodlands with loose-textured soils.	None: Grassland on airfield subject to too much disturbance to support species.

Status Codes:

FE: Federally endangered

FT: Federally threatened

SE: State endangered

ST: State threatened

1B: California Rare Plant Rank 1B: plants rare or endangered in California and elsewhere

2: California Rare Plant Rank 2: plants rare or endangered in California but more common elsewhere

Notes:

CSC: = California Species of Special Concern

CFP: = California Fully Protected Species

DPS = distinct population segment

ESU = evolutionarily significant unit

¹ The National Marine Fisheries Service (NMFS) considers an ESU a "species" under the federal Endangered Species Act.

APPENDIX C
COMMENT LETTER RECEIVED
IN RESPONSE TO EARLY NOTIFICATION



CITY OF SAN BRUNO

COMMUNITY DEVELOPMENT DEPARTMENT

November 29, 2010

RECEIVED

DEC -3 2010

Irene Nishimura
San Francisco Planning Department
1650 Mission Street, Suite 400
San Francisco, CA 94103-2479

Planning and Environmental
Affairs

RE: Runway Safety Area Program, San Francisco International Airport

Dear Ms. Nishimura:

Thank you for sending me the Notification of Project Receiving Environmental Review related to the Runway Safety Area Program at SFO. I was also able to meet with Audrey Park of the San Francisco International Airport to review the project.

We understand the improvements are to be constructed entirely within the airport property and will not change the existing traffic patterns. With that in mind, the City wants to ensure that the proposed improvements will not change the imaginary surface as established in FAA Part 77 (which would impact allowed building height). In addition, please confirm the improvements will not change the existing noise contours. The City recently adopted a General Plan and we are currently working on a Transit Corridor Specific Plan. We want to ensure that the proposed runway improvements will not impact the City's ability to build out the vision contained within these plans.

Thank you for the opportunity to comment. If you would like to discuss further, I can be reached at (650) 616-7039 or aaknin@sanbruno.ca.gov.

Sincerely,

Aaron Akin, AICP
Community Development Director

cc: Audrey Pak, San Francisco International Airport

APPENDIX D
COMMENT LETTERS RECEIVED
DURING PUBLIC COMMENT PERIOD



State of California – The Natural Resources Agency
DEPARTMENT OF FISH AND GAME
Bay Delta Region
7329 Silverado Trail
Napa, CA 94558
(707) 944-5500
www.dfg.ca.gov

EDMUND G. BROWN, Jr., Governor
JOHN McCAMMAN, Director



August 19, 2011

Ms. Irene Nishimura
San Francisco Planning Department
1650 Mission Street
San Francisco, CA 94103

Dear Ms. Nishimura:

Subject: San Francisco International Airport Runway Safety Area Program, Mitigated Negative Declaration, SCH #2011072043, San Mateo County

This letter is intended to summarize the Department of Fish and Game's (DFG) concerns regarding the botanical, wildlife and fisheries impacts associated with the San Francisco International Airport Runway Safety Area Program (Project) in San Mateo County (County). As part of the runway safety area improvements, the Project proposes to demolish and relocate an existing electrical substation building, construct new underground drainage installations and a pump station, relocate runway, taxi lights and signage, and modify existing navigation aids. DFG has reviewed the Mitigated Negative Declaration (MND) for the proposed Project and offers the following comments regarding sensitive resources.

The Biological Resources section describes several seasonal wetlands on the Project site as well as tidal marsh comprised of several elevation zones that vary in plant species composition due to differences in tidal inundation and subsequent variations in salinity. The document states that no special-status plant species have been observed or are expected to occur in the Project vicinity due to its history of disturbance. No current surveys have been conducted within the Project area. A rare plant focused survey, conducted according to DFG's Rare Plant Survey Guidelines by a qualified botanist during the appropriate months, is needed to determine the extent of special-status plant species in the Project area. The California Environmental Quality Act (CEQA) Guidelines Section 15380(d) states that these species be addressed as other threatened and endangered species and adequate mitigation be provided for any impacts. DFG recommends that impacts be avoided in areas where these species occur.

Mitigation Measure M B1-1 lists measures to reduce impacts to state-listed fish species. Longfin smelt (*Spirinchus thaleichthys*) are found throughout San Francisco Bay and spend the majority of their lives in salt and brackish water. DFG agrees that pile installation activities could directly impact longfin smelt which were listed by the Fish and Game Commission in April 2010 as threatened under the California Endangered Species Act (CESA). An Incidental Take Permit (ITP) must be obtained if the project has the potential to result in take of species of plants or animals listed under CESA, either during construction

or over the life of the project. The California Fish and Game Commission defines take as any action or attempt to "hunt, pursue, catch, capture, or kill." The requirements for an application for an ITP under CESA are described in Section 2081 of the California Fish and Game Code and in final adopted regulations for implementing Sections 2080 and 2081. Issuance of an ITP is subject to CEQA documentation; therefore, the CEQA document must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the project will impact CESA listed species, early consultation is encouraged, as significant modification to the project and mitigation measures may be required in order to obtain an ITP.

Impact BI-3 describes suitable habitat and detection of calling birds including the California clapper rail (*Rallus longirostris obsoletus*) within a 700-foot buffer distance of the airfield and the tidal marsh southeast of the airfield. As stated in the Biological Resources section, California clapper rail is a Fully Protected species and may not be taken or possessed at any time and no licenses or permits may be issued for their take. DFG supports the measures outlined in Mitigation Measure M-BI-3, and recommends the following modifications underlined below:

- A qualified biologist with previous California clapper rail experience shall monitor all construction activities occurring within or adjacent to the tidal marsh. The biologist shall document compliance with the avoidance and minimization measures. The biologist shall have the authority to stop work if deemed necessary for any reason to protect California clapper rails and other special-status tidal marsh bird species. If the biologist has requested work stoppage because of a listed species, DFG Bay Delta Regional Office will be notified within 24 hours.

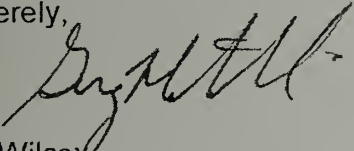
In addition, DFG recommends adding the following measures to Mitigation Measure M-BI-3:

- Staging areas shall be located at least 100 feet from water bodies.
- If a California clapper rail or a California black rail is observed within the work area, then work shall be stopped immediately by the qualified biologist, and the mouse or rail shall be allowed to leave the work area on its own volition. DFG shall be notified of any such occurrences. If the rail does not leave the area, then no work shall commence until DFG has made a determination on how to proceed with work activities.
- Prior to the initiation of work each day during a) all vegetation removal; b) the construction of the exclusion fencing; c) all work within 300 feet of tidal habitats, the qualified biologist shall thoroughly inspect the work area and adjacent habitat areas to determine if California clapper rails, California black rails or other special-status species are potentially present in these areas.

Ms. Irene Nishimura
August 19, 2011
Page 3

DFG appreciates the opportunity to provide comments on the MND for the proposed Project and is available to meet with you to further discuss our concerns. If you have any questions, please contact Ms. Suzanne Gilmore, Environmental Scientist, at (707) 944-5536 or Mr. Greg Martinelli, Senior Environmental Scientist, at (707) 944-5570.

Sincerely,



for Carl Wilcox
Regional Manager
Bay Delta Region

cc: State Clearinghouse



Department of Toxic Substances Control



Matthew Rodriguez
Secretary for
Environmental Protection

Deborah O. Raphael, Director
700 Heinz Avenue
Berkeley, California 94710-2721

Edmund G. Brown Jr.
Governor

RECEIVED

August 19, 2011

AUG 24 2011

CITY & COUNTY OF S.F.
PLANNING DEPARTMENT
ME 4

Ms. Irene Nishimura
San Francisco Planning Department
Environmental Planning
1650 Mission Street, Suite 400
San Francisco, California 94103

Dear Ms. Nishimura:

Thank you for the opportunity to comment on the Preliminary Mitigated Negative Declaration for San Francisco International Airport Runway Safety Area Program Project (SCH# 2011072043). As you may be aware, the California Department of Toxic Substances Control (DTSC) oversees the cleanup of sites where hazardous substances have been released pursuant to the California Health and Safety Code, Division 20, Chapter 6.8. As a potential Responsible Agency, DTSC is submitting comments to ensure that the environmental documentation prepared for this project to address the California Environmental Quality Act (CEQA) adequately addresses any required remediation activities which may be required to address any hazardous substances release.

Section 16, Impact HZ-2 subsection of the initial study states that there are hazardous waste release sites that are known to be, or have the potential to be, within the vicinity of the project site that would be disturbed by construction of the SFO RSA program. However, the document does not provide a description of past land uses or any onsite soil or groundwater analytical data. Without this information, we are unable to determine if hazardous conditions may arise as a result of project implementation. We strongly recommend that a historical assessment of past uses be done. Based on that information, sampling should be conducted to determine whether there is an issue which will need to be addressed in the CEQA compliance document. If hazardous substances have been released, they will need to be addressed as part of this project.

For example, if the remediation activities include the need for soil excavation, the CEQA document should include: (1) an assessment of air impacts and health impacts associated with the excavation activities; (2) identification of any applicable local standards which may be exceeded by the excavation activities, including dust levels and noise; (3) transportation impacts from the removal or remedial activities; and (4) risk

Irene Nishimura
August 19, 2011
Page 2

of upset should there be an accident at the Site.

DTSC and the Regional Water Quality Control Boards (Regional Boards) signed a Memorandum of Agreement, March 1, 2005 (MOA) aimed to avoid duplication of efforts among the agencies in the regulatory oversight of investigation and cleanup activities at brownfield sites. Under the MOA, anyone requesting oversight from DTSC or a Regional Board must submit an application to initiate the process to assign the appropriate oversight agency. The completed application and site information may be submitted to either DTSC or Regional Board office in your geographical area. The application is available at <http://www.calepa.ca.gov/brownfields/MOA/application.pdf>.

Please contact Ryan Miya at (510) 540-3775 if you have any questions or would like to schedule a meeting. Thank you in advance for your cooperation in this matter.

Sincerely,

A handwritten signature in cursive script that reads "Ryan Miya for".

Denise Tsuji, Unit Chief
Northern California - Coastal Cleanup
Operations Branch

cc: Governor's Office of Planning and Research
State Clearinghouse
P.O. Box 3044
Sacramento, California 95814-3044

Guenther Moskat
CEQA Tracking Center
Department of Toxic Substances Control
P.O. Box 806
Sacramento, California 95812-0806

DEPARTMENT OF TRANSPORTATION

DIVISION OF AERONAUTICS – M.S.#40

1120 N STREET

P. O. BOX 942874

SACRAMENTO, CA 94274-0001

PHONE (916) 654-4959

FAX (916) 653-9531

TTY 711

*Flex your power!
Be energy efficient!*

July 27, 2011

Ms. Audrey Park
San Francisco Planning Department
Environmental Planning
1650 Mission Street
San Francisco, CA 94103

Dear Ms. Park:

Re: Mitigated Negative Declaration for the SFO RSA Program, SCH# 2011072043

The California Department of Transportation (Caltrans), Division of Aeronautics (Division), reviewed the above-referenced document with respect to airport-related noise and safety impacts and regional aviation land use planning issues pursuant to the California Environmental Quality Act (CEQA). The Division has technical expertise in the areas of airport operations safety and airport land use compatibility. We are a funding agency for airport projects and we have permit authority for public-use and special-use airports and heliports. The following comments are offered for your consideration.

The project proposes to construct various safety improvements to existing Runway Safety Areas for each of the four runways at San Francisco International Airport (SFO) which is located in unincorporated San Mateo County. The proposed safety improvements include a combination of shifting the position of the runways and installing an Engineered Materials Arresting System (EMAS) at the ends of two runways. The project also includes installation of new runway and taxiway lighting and signage, underground drainage, and modification to existing navigational aids.

The proposed runway modifications will require an amended State airport permit. Detailed information regarding State airport permit amendments can be viewed on-line at <http://www.dot.ca.gov/hq/planning/aeronaut/airportpermit.html>. You should also contact the Division's Aviation Safety Officer for San Mateo County, Don Haug, at (916) 654-5174, to request a State airport permit-application package.

Prior to amending the State airport permit, the Division, as responsible agency, must be assured that the proposal is in full compliance with CEQA. The Division must be provided copies of all environmental documentation for this proposal including a notice of determination when the project has been approved. To ensure that the community will not be adversely impacted by aircraft operations, flight paths should avoid noise-sensitive and people intensive uses. Environmental documentation should include diagrams showing the location of proposed runway and the approach/departure flight paths. The diagrams should also depict the proximity of the proposed flight paths to any existing or proposed noise sensitive or people intensive uses.

Ms. Audrey Park

July 27, 2011

Page 2

Consideration given to the issue of compatible land uses in the vicinity of the airport should help to relieve future conflicts between the airport and its neighbors.

The project proposal should be referred to the San Mateo County Airport Land Use Commission (ALUC) for their review and consistency finding. If inconsistencies are identified, the ALUC should take steps to amend the airport land use compatibility plan.

The guidance in the Federal Aviation Administration's (FAA) Advisory Circular 150/5370-2E, *Operational Safety on Airports During Construction*, should be incorporated into the project design in order to identify any permanent or temporary construction-related impacts (e.g. construction cranes, etc.) to the airport imaginary surfaces. This advisory circular is available at <http://faa.gov>. Depending on structural heights during construction, the FAA may require a Notice of Proposed Construction or Alteration (Form 7460-1) pursuant to Federal Aviation Regulation Part 77. Form 7460-1 is available on-line at <https://oeaaa.faa.gov/oeaaa/external/portal.jsp> and should be submitted electronically to the FAA.

These comments reflect the areas of concern to the Division with respect to airport-related noise, safety, and regional land use planning issues. We advise you to contact our District 4 office concerning surface transportation issues.

Thank you for the opportunity to review and comment on this proposal. If you have any questions, please call me at (916) 654-6223, or by email at philip_crimmins@dot.ca.gov.

Sincerely,

Original Signed by

PHILIP CRIMMINS

Aviation Environmental Specialist

c: State Clearinghouse, San Mateo County ALUC, San Francisco Int'l Airport



Edmund G. Brown Jr.
Governor

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit



Ken Alex
Director

August 24, 2011

RECEIVED

SEP 05 2011

Irene Nishimura
San Francisco Planning Department
1650 Mission Street
San Francisco, CA 94103

CITY & COUNTY OF S.F.
PLANNING DEPARTMENT
M.E.A.

Subject: San Francisco International Airport Runway Safety Area Program
SCH#: 2011072043

Dear Irene Nishimura:

The enclosed comment (s) on your Mitigated Negative Declaration was (were) received by the State Clearinghouse after the end of the state review period, which closed on August 22, 2011. We are forwarding these comments to you because they provide information or raise issues that should be addressed in your final environmental document.

The California Environmental Quality Act does not require Lead Agencies to respond to late comments. However, we encourage you to incorporate these additional comments into your final environmental document and to consider them prior to taking final action on the proposed project.

Please contact the State Clearinghouse at (916) 445-0613 if you have any questions concerning the environmental review process. If you have a question regarding the above-named project, please refer to the ten-digit State Clearinghouse number (2011072043) when contacting this office.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Enclosures
cc: Resources Agency



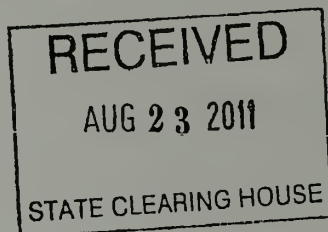
State of California – The Natural Resources Agency
DEPARTMENT OF FISH AND GAME
Bay Delta Region
7329 Silverado Trail
Napa, CA 94558
(707) 944-5500
www.dfg.ca.gov

EDMUND G. BROWN, Jr. Governor
JOHN McCAMMAN, Director



August 19, 2011

latz
8/22/11
e



Ms. Irene Nishimura
San Francisco Planning Department
1650 Mission Street
San Francisco, CA 94103

Dear Ms. Nishimura:

Subject: San Francisco International Airport Runway Safety Area Program, Mitigated Negative Declaration, SCH #2011072043, San Mateo County

This letter is intended to summarize the Department of Fish and Game's (DFG) concerns regarding the botanical, wildlife and fisheries impacts associated with the San Francisco International Airport Runway Safety Area Program (Project) in San Mateo County (County). As part of the runway safety area improvements, the Project proposes to demolish and relocate an existing electrical substation building, construct new underground drainage installations and a pump station, relocate runway, taxi lights and signage, and modify existing navigation aids. DFG has reviewed the Mitigated Negative Declaration (MND) for the proposed Project and offers the following comments regarding sensitive resources.

The Biological Resources section describes several seasonal wetlands on the Project site as well as tidal marsh comprised of several elevation zones that vary in plant species composition due to differences in tidal inundation and subsequent variations in salinity. The document states that no special-status plant species have been observed or are expected to occur in the Project vicinity due to its history of disturbance. No current surveys have been conducted within the Project area. A rare plant focused survey, conducted according to DFG's Rare Plant Survey Guidelines by a qualified botanist during the appropriate months, is needed to determine the extent of special-status plant species in the Project area. The California Environmental Quality Act (CEQA) Guidelines Section 15380(d) states that these species be addressed as other threatened and endangered species and adequate mitigation be provided for any impacts. DFG recommends that impacts be avoided in areas where these species occur.

Mitigation Measure M-B1-1 lists measures to reduce impacts to state-listed fish species. Longfin smelt (*Spirinchus thaleichthys*) are found throughout San Francisco Bay and spend the majority of their lives in salt and brackish water. DFG agrees that pile installation activities could directly impact longfin smelt which were listed by the Fish and Game Commission in April 2010 as threatened under the California Endangered Species Act (CESA). An Incidental Take Permit (ITP) must be obtained if the project has the potential to result in take of species of plants or animals listed under CESA, either during construction

or over the life of the project. The California Fish and Game Commission defines take as any action or attempt to "hunt, pursue, catch, capture, or kill." The requirements for an application for an ITP under CESA are described in Section 2081 of the California Fish and Game Code and in final adopted regulations for implementing Sections 2080 and 2081. Issuance of an ITP is subject to CEQA documentation; therefore, the CEQA document must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the project will impact CESA listed species, early consultation is encouraged, as significant modification to the project and mitigation measures may be required in order to obtain an ITP.

Impact BI-3 describes suitable habitat and detection of calling birds including the California clapper rail (*Rallus longirostris obsoletus*) within a 700-foot buffer distance of the airfield and the tidal marsh southeast of the airfield. As stated in the Biological Resources section, California clapper rail is a Fully Protected species and may not be taken or possessed at any time and no licenses or permits may be issued for their take. DFG supports the measures outlined in Mitigation Measure M-BI-3, and recommends the following modifications underlined below:

- A qualified biologist with previous California clapper rail experience shall monitor all construction activities occurring within or adjacent to the tidal marsh. The biologist shall document compliance with the avoidance and minimization measures. The biologist shall have the authority to stop work if deemed necessary for any reason to protect California clapper rails and other special-status tidal marsh bird species. If the biologist has requested work stoppage because of a listed species, DFG Bay Delta Regional Office will be notified within 24 hours.

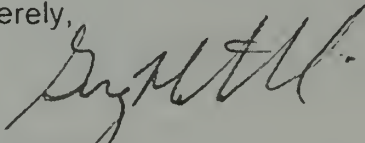
In addition, DFG recommends adding the following measures to Mitigation Measure M-BI-3:

- Staging areas shall be located at least 100 feet from water bodies.
- If a California clapper rail or a California black rail is observed within the work area, then work shall be stopped immediately by the qualified biologist, and the mouse or rail shall be allowed to leave the work area on its own volition. DFG shall be notified of any such occurrences. If the rail does not leave the area, then no work shall commence until DFG has made a determination on how to proceed with work activities.
- Prior to the initiation of work each day during a) all vegetation removal; b) the construction of the exclusion fencing; c) all work within 300 feet of tidal habitats, the qualified biologist shall thoroughly inspect the work area and adjacent habitat areas to determine if California clapper rails, California black rails or other special-status species are potentially present in these areas.

Ms. Irene Nishimura
August 19, 2011
Page 3

DFG appreciates the opportunity to provide comments on the MND for the proposed Project and is available to meet with you to further discuss our concerns. If you have any questions, please contact Ms. Suzanne Gilmore, Environmental Scientist, at (707) 944-5536 or Mr. Greg Martinelli, Senior Environmental Scientist, at (707) 944-5570.

Sincerely,



for Carl Wilcox
Regional Manager
Bay Delta Region

cc: State Clearinghouse

APPENDIX E
RESPONSES TO COMMENT LETTERS
RECEIVED DURING THE PUBLIC COMMENT PERIOD



SAN FRANCISCO PLANNING DEPARTMENT

1650 Mission St.
Suite 400
San Francisco,
CA 94103-2479

Reception:
415.558.6378

Fax:
415.558.6409

Planning
Information
415.558.6377

November 30, 2011

Mr. Carl Wilcox
Regional Manager
California Department of Fish and Game
Region 3: Bay Delta Region
7329 Silverado Trail
Napa, CA 94558

Subject: SCH# 2011072043, San Francisco International Airport Runway Safety Area Program, Mitigated Negative Declaration and Initial Study, Case No. 2010.0755E

Dear Mr. Wilcox:

The San Francisco Planning Department submits this letter and supporting attachments regarding the California Department of Fish and Game's (CDFG) comments on the Mitigated Negative Declaration (MND) and Initial Study (IS) for the above-referenced project. Specifically, the purpose of this submittal is to respond to your comments related to sensitive resources associated with the Runway Safety Area (RSA) Program, as discussed in your letter dated August 19, 2011. Our responses below have been developed and coordinated with San Francisco International Airport (SFO) staff and their consultants for the RSA Program.

Rare Plant Assessment (Attachment A): As described in the attached botanical assessment letter report, a late season rare plant survey was conducted on August 30, 2011 in the RSA project areas that were evaluated in the Final MND and IS. In summary, the timing of survey included the blooming period for 7 of the 11 target species with the potential to occur in the project areas. None of the species were found and reference sites for two target species were observed to verify the timing of the survey effort. Based on the results of the botanical assessment and focused late-season survey, the report concludes that it is unlikely that any of the target special-status plants occur in the RSA project areas. The IS has been amended to include a summary of the results of the botanical assessment (see Attachment B, Final MND and IS, Topic E.13, Biological Resources on pages 135 through 169 in the Final MND/IS).

Longfin Smelt and Incidental Take Permit (ITP): As you are aware, SFO has been coordinating with you and CDFG Marine Region staff on this issue, which has most recently included a conference call on September 12, 2011 to review the proposed project and issuance of an ITP. We understand that SFO will continue to work with CDFG to ensure that the project does not result in take of longfin smelt.

Carl Wilcox
California Department of Fish and Game
November 30, 2011

Suggested Refinements to Mitigation Measure M-B1-3: We have reviewed the suggested refinements to Mitigation Measure M-B1-3 with SFO regarding impacts to California clapper rail and other protected tidal marsh bird species. We understand that while the salt marsh harvest mouse and the California black rail are not expected to occur in the project area for reasons described in the Biological Assessment (submitted to U.S. Fish and Wildlife Service, National Marine Fisheries Service, and CDFG, May 2011), SFO formally commits to having all of the suggested refinements to this mitigation measure incorporated into the RSA Program. Therefore, based on discussions during the September 12, 2011, conference call and subsequent email communications between SFO and CDFG, Mitigation Measure M-B1-3 on pages 157 through 159 of the Final IS (Track Changes Version) has been modified to include the suggested refinements as follows:

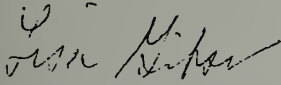
- A qualified biologist with previous California clapper rail experience shall monitor all construction activities occurring within or adjacent to the tidal marsh. The biologist shall document compliance with the avoidance and minimization measures. The biologist shall have the authority to stop work if deemed necessary for any reason to protect California clapper rails and other special-status tidal marsh bird species. If the biologist has requested work stoppage because of a listed species, CDFG Bay Delta Regional Office will be notified within 24 hours.
- Staging areas shall be located at least 100 feet from water bodies.
- If a California clapper rail or a California black rail is observed within the tidal marsh and adjacent habitat work areas, then work shall be stopped immediately by the qualified biologist, and the salt marsh harvest mouse or rail shall be allowed to leave the work area on its own volition. CDFG shall be notified of any such occurrences. If the rail or mouse does not leave the area, then no work shall commence until CDFG has made a determination on how to proceed with work activities.
- Prior to initiation of work each day for the vehicle service road and seawall relocations during a) all vegetation removal; b) the construction of the exclusion fencing; c) all work within 300 feet of tidal habitats, the qualified biologist shall thoroughly inspect the tidal marsh work area and adjacent habitat areas to determine if California clapper rails, California black rails or other special-status species are potentially present in these areas.

If you wish to obtain an electronic version of the Final MND and IS, it is available to view or download from the Planning Department's Environmental Planning Cases webpage (<http://tinyurl.com/sfceqadocs>).

Please feel free to contact me at (415) 575-9032 or at lisa.gibson@sfgov.org if you have any questions and/or require further information regarding these responses to your comments on the SFO RSA Program Preliminary MND and IS. Alternatively, you can contact Irene Nishimura at (415) 575-9041 or at irene.nishimura@sfgov.org.

Carl Wilcox
California Department of Fish and Game
November 30, 2011

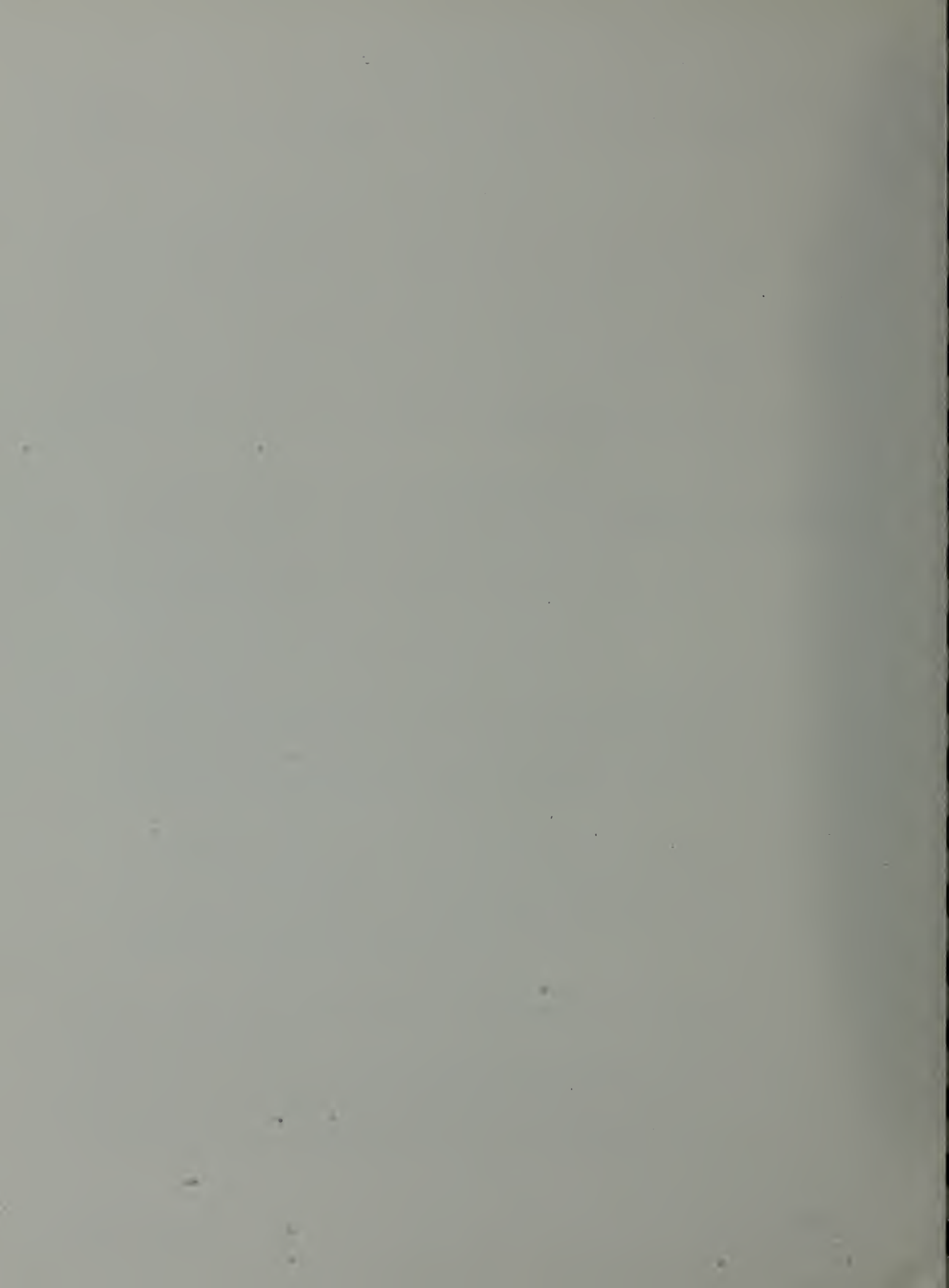
Sincerely,



Lisa Gibson
Senior Environmental Planner
Environmental Planning Division

cc: Greg Martinelli, CDFG Region 3
Ms. Suzanne Gilmore, CDFG Region 3
Audrey Park, Project Sponsor

Attachment A: Botanical Assessment Report
Attachment B: Final MND/IS





SAN FRANCISCO PLANNING DEPARTMENT

November 30, 2011

Ms. Denise Tsuji
Unit Chief
Northern California – Coastal Cleanup
Operations Branch
California Department of Toxics Substances Control
700 Heinz Avenue
Berkeley, CA 94710-2721

1650 Mission St.
Suite 400
San Francisco, CA 94103-2479

Reception.
415.558.6378

Fax
415.558.6409

Planning
Information.
415.558.6377

RE: SCH #2011072043, San Francisco International Airport Runway Safety Area Program, Mitigated Negative Declaration and Initial Study, Case No. 2010.0755E

Dear Ms. Tsuji:

Thank you for your letter dated August 19, 2011 providing comments on the Preliminary Mitigated Negative Declaration (MND) and Initial Study (IS) for the San Francisco International Airport (SFO) Runway Safety Area (RSA) Program. This letter includes a brief discussion of these comments and our response, resulting in revisions to the Final MND and IS, which are enclosed as Attachment A.

Regarding your questions on past land uses please note that the entirety of the terrestrial portions of the project site are situated on lands reclaimed from San Francisco Bay for airport use. As noted under Impact HZ-2 on IS page 187, historical maps and photographs indicate that SFO was incrementally developed from 1927 to 1973 by filling portions of San Francisco Bay. This information has been included in Final MND and IS Section B, Project Setting, on page 39.

As stated under Impact HZ-2 on IS pages 187 through 190, an assessment was conducted to identify sites and facilities that are known, suspected, or likely to contain or store hazardous materials and to identify areas of known subsurface soil and/or groundwater contamination at SFO and within the project vicinity. Approximately 19 reported hazardous waste release sites are known to be, or have the potential to be, within the vicinity of the project site that would be disturbed by construction of the SFO RSA Program. The releases have primarily been of petroleum hydrocarbons from leaking underground storage tanks and jet fuel releases from surface spills and below-grade pipeline leaks. Therefore, as indicated under Impact HZ-2, soil and/or groundwater contamination may be encountered in select areas. The project is a construction project and does not involve cleanup or remediation activities. Compliance with applicable federal, state, and local regulations, and the implementation of Mitigation Measures M-HY-1a, M-HY-1b, M-HZ-2a, M-HZ-2b, and M-HZ-2c is proposed to reduce potential construction impacts to less-than-significant levels. The discussion of hazardous waste release sites in Impact HZ-2 of the Final MND and IS on pages 187 through 190 has been

clarified and Mitigation Measures M-HZ-2a and M-HZ-2b have expanded upon as shown below (new text is shown in underline) to reflect standard construction procedures implemented by SFO for excavation activities.

Mitigation Measure M-HZ-2a: Contaminated Soils and/or Groundwater

For any location where environmental contamination could be encountered during the construction phase, the project sponsor shall ensure that the contractor's construction plans and specifications include provisions for the handling, storage, treatment, and/or testing and disposal of hazardous materials, contaminated soil, and/or groundwater. These provisions shall include the excavation and offsite disposal of contaminated soil, or testing and reuse of contaminated soil on the project site beneath sealed surfaces.

All excavated soil from each project area shall be stockpiled in a designated secure area, and representative samples shall be collected from each stockpile for analysis of petroleum hydrocarbons (including gasoline, jet, and diesel fuels) and for VOCs (including benzene, toluene, ethylbenzene, and xylenes). The samples shall also be analyzed for cadmium, chromium, nickel, lead, and zinc. Each stockpile shall be disposed of at an appropriate landfill based on the soil contaminant levels, or reused at the Airport if no contaminants were detected or if the detected levels were below the allowable limits established for the Airport by the RWQCB.

Mitigation Measure M-HZ-2b: Dewatering, Water Testing, Storage, and Treatment

For locations requiring dewatering where environmental contamination could be encountered during the construction phase, the project sponsor shall ensure that the contractor arranges for required dewatering water testing, storage, and treatment, in compliance with the Industrial Waste Process under the NPDES Permit Number CA0028070, San Francisco Bay RWQCB Order Number R2-2007-0060. Water shall be tested for the same constituents as those identified for excavated soil. If contaminants are detected in the stored groundwater, the water shall be transported to the Mel Leong Treatment Plant for treatment prior to disposal.

Thank you for the clarification you provided on the Memorandum of Agreement (MOA) process in your email communication to SFO on September 27, 2011. I understand that the San Francisco Bay Regional Water Quality Control Board has an existing Site Cleanup Requirements Order (#99-045) with SFO and therefore the MOA process does not apply to the current project.

If you wish to obtain an electronic version of the Final MND and IS, it is available to view or download from the Planning Department's Environmental Planning Cases webpage (<http://tinyurl.com/sfceqadocs>).

Denise Tsuji
California Department of Toxics Substances Control
November 30, 2011

Please contact me at (415) 575-9032 or at lisa.gibson@sfgov.org if you have any questions or require further information regarding these responses to your comments on the SFO RSA Program Preliminary MND and IS. Alternatively, you can contact Irene Nishimura at (415) 575-9041 or at irene.nishimura@sfgov.org.

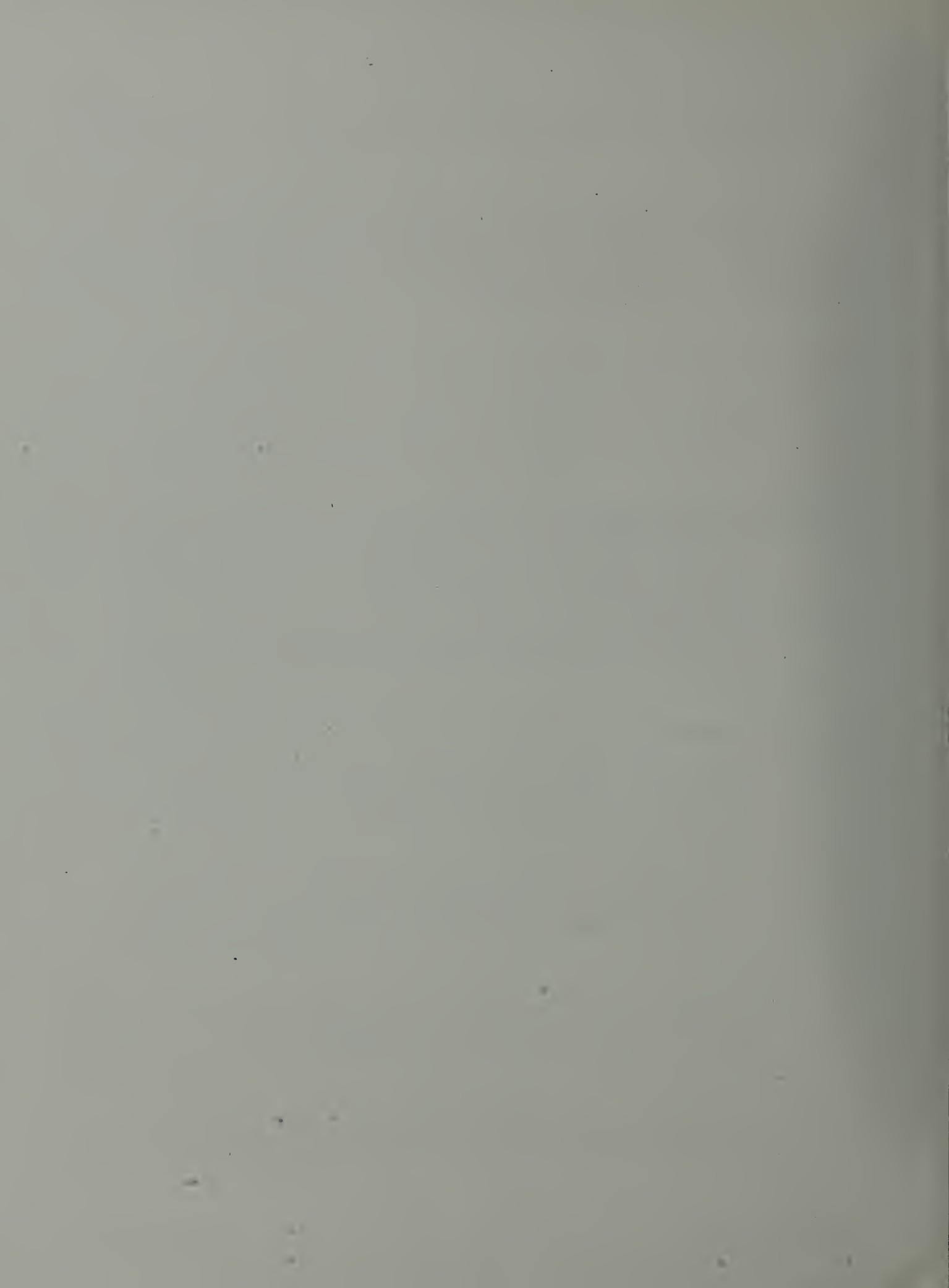
Sincerely,



Lisa Gibson
Senior Environmental Planner
Environmental Planning Division

cc: Audrey Park, Project Sponsor

Attachment A: Final MND/IS





SAN FRANCISCO PLANNING DEPARTMENT

November 30, 2011

Mr. Philip Crimmins
Aviation Environmental Specialist
California Department of Transportation
Division of Aeronautics – M.S. 40
1120 N Street
P.O. Box 942874
Sacramento, CA 94274-0001

1650 Mission St.
Suite 400
San Francisco,
CA 94103-2479

Reception:
415.558.6378

Fax
415.558.6409

Planning
Information
415.558.6377

RE: SCH #2011072043, San Francisco International Airport Runway Safety Area Program, Mitigated Negative Declaration and Initial Study, Case No. 2010.0755E

Dear Mr. Crimmins:

Thank you for your letter dated July 27, 2011, providing comments on the Preliminary Mitigated Negative Declaration (MND) and Initial Study (IS) for the San Francisco International Airport (SFO) Runway Safety Area (RSA) Program. This letter includes a brief discussion of these comments and our response, resulting in revisions to the Final MND and IS, which are enclosed (see Attachment A

Regarding distribution of environmental documentation for the SFO RSA Program, I have confirmed that the Division of Aeronautics and District 4 of the California Department of Transportation (Caltrans) are included on the project distribution list. In accordance with Caltrans' request both divisions will receive copies of the Notice of Determination on the project from SFO.

As stated in your letter, the proposed project will require an amended State Airport Permit, which may also involve a consistency finding. The project sponsor (SFO) will continue to work with Caltrans on this permit amendment. This information is added in in Section A.5, Project Approvals and Permits, on IS pages 35 and 36; and in Section C.2, Required Approvals and Permits, on IS pages 44 through 46. The Federal Aviation Administration's (FAA) Advisory Circular 150/5370-2E, *Operational Safety on Airports During Construction*, will need to be incorporated into the project design as appropriate, and a Notice of Proposed Construction or Alteration (Form 7460-1) may be required. SFO will coordinate with the FAA upon completion of design on the need for filing Form 7460-1. In addition, as noted on IS page 75, the FAA will prepare a Safety Management System for construction and operation of the proposed project pursuant to FAA Order 5200.11, *FAA Airports (ARP) Safety Management System (SMS)*.

I also note Caltrans' questions and comments in your letter regarding flight paths and potential impacts on noise-sensitive uses. Topic E.6, Noise, on IS pages 77 through 104, includes an analysis of potential noise impacts of the SFO RSA Program. Impact NO-1 in particular includes an analysis of noise-sensitive land uses and population exposed to noise

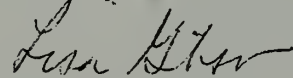
Philip Crimmins
California Department of Transportation
November 30, 2011

levels of Community Noise Equivalent Level (CNEL) of 65 A-weighted decibels (dBA) or higher under the proposed project. Figures 15 through 20 on IS pages 81 through 91 present proposed project and no project conditions for 2010, 2015, and 2020. Potential noise-sensitive land uses that would be exposed to noise levels of CNEL 65 dBA or higher under proposed project conditions would be limited to residential uses to the southwest in a small area localized within a radius of approximately 2,000 feet southwest of Runways 1L and 1R (see Figures 21 through 23 on IS pages 95 through 99). All but two of the homes that would be exposed to these noise levels have been insulated under SFO's Residential Sound Insulation Program. Owners of these homes were previously offered insulation but declined participation. Although the proposed project would result in less-than-significant noise impacts, the project sponsor has agreed to adopt Improvement Measure I-NO-1, which offers noise insulation for these residences (see IS pages 101 and 102). Flight paths/tracks used in the noise analysis are presented in Appendix A of the Noise Technical Memorandum prepared for the project, which is enclosed as Attachment B. The technical memorandum also includes a note that flight tracks and flight track usage assumptions for the noise analysis remained the same as with existing conditions. Detailed design of the proposed project and an aerial survey will need to occur before the FAA Flight Procedures division can design approach and departure procedures.

If you wish to obtain an electronic version of the Final MND and IS, it is available to view or download from the Planning Department's Environmental Planning Cases webpage (<http://tinyurl.com/sfceqadocs>).

Please contact me at (415) 575-9032 or at lisa.gibson@sfgov.org if you have any questions or require further information regarding these responses to your comments on the SFO RSA Program Preliminary MND and IS. Alternatively, you can contact Irene Nishimura at (415) 575-9041 or at irene.nishimura@sfgov.org.

Sincerely,



Lisa Gibson
Senior Environmental Planner
Environmental Planning Division

cc: Audrey Park, Project Sponsor
Mr. Terry Barrie, Caltrans Division of Aeronautics
James B. Richards, Caltrans District 4

Attachment A: Final MND/IS

Attachment B: Appendix A of the Noise Technical Memorandum



SAN FRANCISCO PLANNING DEPARTMENT

1050 Mission St.
Suite 400
San Francisco,
CA 94103-2479

Reception:
415.558.6378

Fax:
415.558.6409

Planning
Information:
415.558.6377

November 30, 2011

Mr. Scott Morgan
Director
State Clearinghouse and Planning Unit
Governor's Office of Planning and Research
P.O. Box 3044
Sacramento, CA 95812-3044

RE: SCH #2011072043, San Francisco International Airport Runway Safety Area Program, Mitigated Negative Declaration and Initial Study, Case No. 2010.0755E

Dear Mr. Morgan:

Thank you for your letter dated August 24, 2011, providing a comment letter received from the California Department of Fish and Game (CDFG) by the State Clearinghouse on the Preliminary Mitigated Negative Declaration (MND) and Initial Study (IS) for the San Francisco International Airport (SFO) Runway Safety Area (RSA) Program. This letter includes a brief discussion of these comments and our response, resulting in revisions to the Final MND and IS, which are enclosed.

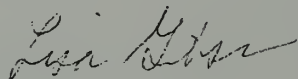
The Planning Department has considered the CDFG's comments in the preparation of the SFO RSA Program Final MND and IS. We have revised the Biological Resources section discussion and refined Mitigation Measure M-BI-3, as recommended by CDFG, in the Final MND and IS, on IS pages 157 through 159. These revisions and other refinements that have been incorporated into the Final MND and IS in response to comment letters from CDFG and other state agencies are summarized in IS Section G.3 on pages 223 and 224. A track changes version of the Final MND and IS amended on November 30, 2011, is attached for your information.

If you wish to obtain an electronic version of the Final MND and IS, it is available to view or download from the Planning Department's Environmental Planning Cases webpage (<http://tinyurl.com/sfceqadocs>).

Please contact me at (415) 575-9032 or at lisa.gibson@sfgov.org if you have any questions or require further information regarding these responses to your comments on the SFO RSA Program Preliminary MND and IS. Alternatively, you can contact Irene Nishimura at (415) 575-9041 or at irene.nishimura@sfgov.org.

Scott Morgan
State Clearinghouse and Planning Unit
November 30, 2011

Sincerely,

A handwritten signature in dark ink, appearing to read "Lisa Gibson", with a stylized flourish at the end.

Lisa Gibson
Senior Environmental Planner
Environmental Planning Division

cc: Audrey Park, Project Sponsor

Attachment A: Final MND/IS

